SAF-RC-030 Remaining Sites Confirmation Sampling Other Solid FINAL VALIDATION PACKAGE

COMPLETE COPY OF VALIDATION PACKAGE TO:

Jeanette Duncan (2)

H9-02

Mif 02/13/06

COMMENTS:

SDG(K0096)

SAF-RC-030

Waste Site: 100-D-50:9



Date:

2 February 2006

To:

Washington Closure Hanford Inc. (technical representative)

From:

TechLaw, Inc.

Project:

Remaining Sites Confirmation Sampling - Other Solid - Waste Subsite

is 100-D-50:9

Subject: Inorganics - Data Package No. K0096-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K0096 prepared by Lionville Laboratory Inc. (LLI). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

wisanja eridik	Megample Pages s	Pitta jiya dilenge	Validation#	Service Dark Barry
J10FJ2	11/7/05	Solid	С	See note 1
J10FH7	11/7/05	Solid	С	See note 1
J10FH8	11/7/05	Solid	С	See note 1
J10FH9	11/7/05	Solid	C	See note 1

^{1 -} ICP metals (6010B) and mercury (7471A).

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, February 2005). Appendices 1 through 6 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers

Appendix 2. Summary of Data Qualification

Appendix 3. Qualified Data Summary and Annotated Laboratory Reports

Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation

Appendix 5. Data Validation Supporting Documentation

Appendix 6. Additional Documentation Requested by Client

DATA QUALITY PARAMETERS

Holding Times

Analytical holding times for metals are assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be analyzed within 28 days for mercury and 6 months for ICP metals.

All holding times were acceptable.

· Preparation (Method) Blanks

Preparation Blanks

At least one preparation blank, consisting of deionized distilled water processed through each sample preparation and analysis procedure, must be prepared and analyzed with every sample delivery group. In the case of positive blank results, samples with digestate concentrations less than five times the preparation blank value have had their associated values qualified as non-detected and flagged "U". Samples with concentrations of greater than five times the highest blank concentration do not require qualification.

In the case of negative blank results, if the absolute value exceeds the contract required detection limit (CRDL), all nondetects are rejected and flagged "UR" and all detects that are less than ten times the absolute value of the associated preparation blank result are qualified as estimates and flagged "J". If the absolute value of the negative preparation blank is greater than the instrument detection limit (IDL) and less than or equal to the CRDL, all nondetects are qualified as estimates and flagged "UJ" and all detects less than ten times the absolute value of the blank are qualified as estimates and flagged "J". If the sample results are greater than ten times the absolute value of the preparation blank, no qualification is necessary.

All preparation blank results were acceptable.

Field (Equipment) Blank

No field blanks were submitted for analysis.

Accuracy

Matrix Spike and Laboratory Control Sample

Matrix spike (MS) and laboratory control sample (LCS) analyses are used to assess the analytical accuracy of the reported data. The matrix spike is used to assess the effect of the matrix on the ability to accurately quantify sample concentrations. Recoveries must fall within the range of 70% to 130%. Samples with a recovery of less than 30% and a sample result below the IDL are rejected and flagged "UR". Samples with a recovery of 30% to 69% and a sample result less than the IDL are qualified "UJ". Samples with a recovery of greater than 130% or less than 70% and a sample result greater than the IDL are qualified as estimates and flagged "J". Finally, for samples with a recovery greater than 130% and a sample result less than the IDL, no qualification is required.

Due to an LCS recovery outside QC limits (42.7%), all silicon results were qualified as estimates and flagged "J".

Due to a matrix spike recovery outside QC limits (49.5%), all antimony results were qualified as estimates and flagged "J".

All other accuracy results were acceptable.

Precision

Laboratory Duplicate Samples

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of matrix spike duplicate (MSD) analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the CRDL and the RPD is less than 30%, no qualification is required. If either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

Due to an RPD outside QC limits (108%), all boron results were qualified as estimates and flagged "J".

Due to an RPD outside QC limits (33%), all chromium results were qualified as estimates and flagged "J".

All other laboratory duplicate results were acceptable.

Field Duplicate

No field duplicates were submitted for analysis.

Analytical Detection Levels

Reported analytical detection levels are compared against the remaining waste sites RQLs to ensure that laboratory detection levels meet the required criteria. All analytes met the RQL.

Completeness

Data package No. K0096 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

The following minor deficiencies were noted:

- Due to an LCS recovery outside QC limits (42.7%), all silicon results were qualified as estimates and flagged "J".
- Due to a matrix spike recovery outside QC limits (49.5%), all antimony results were qualified as estimates and flagged "J".
- Due to an RPD outside QC limits (108%), all boron results were qualified as estimates and flagged "J".
- Due to an RPD outside QC limits (33%), all chromium results were qualified as estimates and flagged "J".

Data flagged "J" indicates that the associated concentration is an estimate, but under the BHI statement of work, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

REFERENCES

WCH, Contract #20266, Validation Statement of Work, Washington Closure Hanford Incorporated, July 7, 2003.

DOE/RL-96-22, Rev. 4, 100 Area Remedial Action Sampling and Analysis Plan, U.S. Department of Energy, February 2005.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with BHI validation SOW are as follows:

- Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.
- UJ Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.
- J Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.
- BJ Applied to inorganic analyses only. Indicates the analyte concentration was greater than the IDL but less than the CRDL and is considered an estimated value.
- R Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.
- UR Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.
- NJ Indicates presumptive evidence of a compound at an estimated value.
 The data may not be valid for some specific applications (i.e., usable for decision-making purposes).
- Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

Appendix 2

Summary of Data Qualification

METALS DATA QUALIFICATION SUMMARY*

SEGEKÜÜBE		Floresta Todalo, adiona	IPAGETALIOPEL
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Boron Chromium	J	All	RPD
Silicon	J	All	LCS recovery
Antimony	J	All	MS recovery

^{* -} The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

Lab: LLI	SDG:	K0096							
Sample Numb	er	J10FJ2		J10FH7		J10FH8		J10FH9	
Remarks									
Sample Date		11/7/05		11/7/05		11/7/05		11/7/05	
Inorganics	RQL	Result	Q	Result			Result Q		Q
Silver	0.2	0.85	Ū_	2.2	_	2.6		0.82	υ
Aluminum		5040		6580		6160	L	5440	
Arsenic	10	2.1		2.7	<u> </u>	4.2		2.0	U
Boron		12.1	J	2.8	J	2.8	J	1.6	UJ
Barium	2	71.4		485		512		63.8	
Beryllium		0.06	U	0.14		0.16	L.,	0.06	Ü
Calcium	Π	6240		14300		22100		5400	
Cadmium	0.2	0.43	U	2.8		3.6		0.41	U
Cobalt		7.1		8.0		7.1		6.2	
Chromium	1	13.4	J	52.2	J	54.2	J	8.0	J
Copper		17.6		123		117		12.8	
lron		19600		30200		29400	j	17500	
Mercury	0.2	0.22		5.7	L.	7.5		0.02	υ
Potassium		_ 1100		1230		1160		1140	
Magnesium		3930		4920		4400		3770	
Manganese		298		386		372		290	
Molybdenum		1.0		2.5		2.2		0.76	د
Sodium		176		217		226		164	
Nickel	<u> </u>	9.7		30.5		21.7		8.5	
Lead	5	16.3		160		160		6.0	
Antimony		2.4		2.9	J	2.6	_	2.3	ນ
Selenium	1	2.2	ט	2.5	U	3.1		2.1	UJ
Silicon		352	J	744	J	845	Ĵ	503	J
Vanadium		45.9		34.7		33.5		38.2	
Zinc	1	71.1		1560		1770		38.2	

INORGANICS DATA SUMMARY REPORT 11/18/05

CLIENT: TNUHANFORD RC-030 K0096 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0511L671

	•	:			reporting	DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	FACTOR
*****	*************************************		*****	*****		****
-001	J10FJ2	Silver, Total	0.85 u	MG/KG	0.85	6.0
		Aluminum, Total	5040	MG/KG	9.3	3.0
		Arsenic, Total	2.1 u	MG/KG	2.1	6.0
		Boron, Total	12.1 🗲	MG/KG	1.6	6.0
	ř	Barium, Total	71.4	MG/KG	0.12	6.0.
		Beryllium, Total	0.06 u	MG/KG	0.06	3.0
		Calcium, Total	6240	MG/KG	7.3	6.0
		Cadmium, Total	, 0.43 u	MG/KG	0.43	€.0
		Cobalt, Total	7.1	MG/KG	0.73	6.0
		Chromium, Total	13.4 J	MG/KG	0.98	6.0
		Copper, Total	17.6	MG/KG	0.68	3.0
		Iron, Total	19600	MG/KG	19.6	6.0
		Mercury, Total	0.22	MG/KG	0.02	1.0
		Potassium, Total	1100	MG/KG	33.8	6.0
		Magnesium, Total	393D	MG/KG	8.2	6.0
		Manganese, Total	298	MG/KG	.0 . 12	6.0
		Molybdenum, Total	1.0	MG/KG	0.79	6.0
	•	Sodium, Total	176	MG/KG	1.0	. 6.0
		Nickel, Total	9.7	MG/KG	0.79	6.0
		Lead, Total	16.3	MG/KG	1.9	6.D
	•	Antimony, Total	2.4 u	JMG/KG	2.4	6.0
		Selenium, Total	2.2 u	MG/KG	2.2	6.0
		Silicon, Total	352	MG/KG	5.0	6.0
		Vanadium, Total	45.9	MG/KG	0,55	6.0
		Zinc, Total	71.1	MG/KG	0.30	6.0

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INORGANICS DATA SUMMARY REPORT 11/18/05

CLIENT: TNUHANFORD RC-030 K0096 WORK ORDER: 11343-606-001-9999-00 LVL LOT #: 0511L671

-					REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	FACTOR
*****	****	***************		*****	********	*****
-002	J10PH7	Silver, Total	2.2	MG/KG	0.96	6.0
	•	Aluminum, Total	6580	MG/KG	10.4	3.0
		Arsenic, Total	2.7	MG/KG	2.3	6.0
		Boron, Total	2.8 J	HG/KG	1.8	6.0
		Barium, Total	485	MG/KG	0.14	6.0
		Beryllium, Total	0.14	MG/KG	0.07	3.0
		Calcium, Total	14300	MG/KG	8.1	6.0
		Cadmium, Total	2.8	MG/KG	0.48	6.0
•		Cobalt, Total	0	MG/KG	0.82	6.0
		Chromium, Total	52.2 J	MG/KG	1.1	6.0
		Copper, Total	123	MG/KG	0.99	3.0
		Iron, Total	30200	MG/KG	22.0	6.0
	•	Mercury, Total	5.7	MG/KG	0.11	6.0
		Potassium, Total	1230	MG/KG	37.9	6.0
	•	Magnesium, Total	4920	MG/KG	9.2	6.0
		Manganese, Total	386	MG/KG	0.14	6.0
		Molybdenum, Total	2.5	MG/KG	0.89	6.0
		Sodium, Total	217	MG/KG	1.2	6.0
		Nickel, Total	20.5	MG/KG	0.89	6.0
		Lead, Total	160	MG/KG	2.1	6.0
		Antimony, Total	2.9 丁	ng/kg	2.7	6.0
		Selenium, Total	2.5 u	NG/KG	2.5	6.0
		Silicon, Total	744 J	MG/KG	5.6	6.0
	•	Vanadium, Total	34.7	NG/KG	D.62	6.0
•		Zinc. Total	1560	MG/KG	0.34	6.0

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INORGANICS DATA SUMMARY REPORT 11/18/05

CLIENT: TNUHANFORD RC-030 K0096 WORK ORDER: 11343-606-001-9999-00 LVL LOT #: 0511L671

					REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	RBSULT	Units	LIMIT	FACTOR
*****		在克森森市市西北京市市市市市市市市市市市市市市市市市市市市市市市市市市市市市市市市市	******			*****
-003	J10FH8	Silver, Total	2.6	MG/KG	0.90	6.0
	•	Aluminum, Total	6160	MG/KG	9.8	3.0
	•	Arsenic, Total	4.2	MG/KG	2.2	6.0
		Boron, Total	2.8 7	MG/KG	1.7	6.0
	•	Barium, Total	512	MG/XG	0.13	6.0
		Beryllium, Total	0.16	MG/KG	0.06	3.0.
		Calcium, Total	22100	MG/KG	7.6	6.0
		Cadmium, Total	3.5	MG/KG	0.45	6.0
•	•	Cobalt, Total	7.1	MG/KG	0.77	6.0
•		Chromium, Total	54.2 J	MG/KG	1.0	6.0
		Copper, Total	117	MG/KG	0.93	3.0
		Iron, Total	29400	MG/KG	20.6	6.0
		Mercury, Total	7.5	MG/KG	0.1	6.0
		Potassium, Total	1160	MG/KG	35.5	6.0
	•	Magnesium, Total	4400	MG/KG	8.6	6.0
		Manganese, Total	372	MG/KG	0,13	6.0
		Molybdenum, Total	3.2	MG/XG	0.83	6.0
		Sodium, Total	226	MG/KG	1.1	6.0
		Nickel, Total	21.7	MG/KG	0.83	6.0
	•	Lead, Total	160	MG/KG	2.0	6.0
	•	Antimony, Total	2.6 J	MG/KG	2.6	6.0
		Selenium, Total	3.1	MG/XG	2.3	6.0
		Silicon, Total	845 J	MG/KG	5.2	6.0
		Vanadium, Total	33.5	MG/KG	0.58	6.0
		Zinc, Total	1770	MG/XG	0.32	€.0

N 1/31/04

INORGANICS DATA SUMMARY REPORT 11/18/05

CLIENT: TNUHANFORD RC-030 K0096 WORK ORDER: 11343-606-001-9999-00 LVL LOT #: 0511L671

					REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	result	UNITS	LIMIT	FACTOR
Z======	x 4 单角角及重点 5 条件 医医医性后角性 6 条			*****	********	프프芹菜等用名名
-004	J10PH9	Silver, Total	0.82 u	MG/KG	D.82	6.0
		Aluminum, Total	5440	MG/KG	8.9	3.0
		Arsenic, Total	2.0 u	MG/KG	2.0	6.0
		Boron, Total	1.6 u	IMG/KG	1.6	6.0
		Barium, Total	63.8	MG/KG	0.12	6.0
		Beryllium, Total	0.06 ນ	MG/KG	0.06	3.0
		Calcium, Total	5400	MG/KG	7,0	€.◊
		Cadmium, Total	0.41 u	MG/KG	0.41	6.0
		Cobalt, Total	6.3	MG/KG	0.70	€.0
		Chromium, Total	8.0 J	MG/KG	0.94	6.0
		Copper, Total	12.8	MG/KG	. 0.85	3.0
		Iron, Total	17500	MG/KG	18.8	6.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Potassium, Total	1140	MG/KG	32.5	6.0
		Magnesium, Total	3770	MG/KG	7.9	6.0
		Manganese, Total	290	MG/KG	0.12	6.0
	•	Molybdenum, Total	0.76 ს	MG/KG	0.76	6.0
•		Sodium, Total	164	MG/KG	1.0	6.0
		Nickel, Total	8.5	MG/KG	0.76	6.0
		Lead, Total	6.0	MG/KG	1.8	5.0
		Antimony, Total	2.3 և	MG/KG	2.3	6.0
	•	Selenium, Total	2.1 u	MG/KG	2.1	6.0
		Silicon, Total	T coa	MG/KG	4.8	6.0
		Vanadium, Total	38.2	MG/KG	0.53	6.0
		Zinc, Total	38.2	MG/KG	0.29	6.0

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Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation



Analytical Report

Client: TNU-HANFORD RC-030

LVL#: 0511L671

SDG/SAF#: K0096/RC-030

W.O.#: 11343-606-001-9999-00

Date Received: 11-09-05

METALS CASE NARRATIVE

1. This narrative covers the analyses of 4 solid samples.

- The sample were prepared and analyzed in accordance with methods checked on the attached glossary. The samples were reported with 6-fold dilutions for ICP metals due to high concentrations and sample matrix. The samples were rerun with 3-fold dilutions on a different instrument due to sample matrix. Samples J10FH7 and J10FH8 were rerun for Mercury with 6-fold dilutions due to high concentrations.
- 3. All analyses were performed within the required holding times.
- 4. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
- All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).
- 6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
- 7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
- 8. All ICP Interference Check Standards were within control limits.
- 9. All laboratory control samples (LCS) were within the 80-120% control limits with the exception of Silicon at 42.7%. Refer to the Inorganics Laboratory Control Standards Report. Associated sample results may be biased low.
- 10. The matrix spike (MS) recoveries for 3 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.
- 11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of pages.

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dilution are performed. A PDS was prepared at meaningful concentration level for the following analytes:

		<u>PDS</u>	<u>PDS</u>
Sample ID	<u>Element</u>	Concentration (ppb)	% Recovery
J10FJ2	Aluminum	72,000	96.1
	Iron	60,000	92.8
	Antimony	600	101.1

- 12. The duplicate analyses for 5 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.
- 13. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.
- 14. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
- 15. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels

Laboratory Manager

Lionville Laboratory Incorporated

jjw/m11-671

<u>ີ ໄ</u>ຊລໄປ Date



Washington Closure Han	lord	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST RC-030-020 (1485 1					VI 4						
Collector STANKOVICH/HUDSON		Сопра	nv Contact Stankovich	Telepho 531-7	ne No.	,		Project Coordi KESSNER, JH		Price Cod	le 9C	Data Tu	rnaround
Project Designation Remaining Sites Confirmation Samplin	ng - Other Solid					SAF No. RC-030		Air Qua	lity 🗌	15	Days		
Ice Chest No. AFS-OL	1-120	Field L EL-1	oebook Na. 578		COA CIODRI6	700		Method of Shir FedEx		· · · · · · · · · · · · · · · · · · ·			
Shipped To EBERLINE SERVICES / LIONVILLE		Offsite	Property No.	1000	108			Bill of Lading	Air Bili	No.	SAC		
POSSIBLE SAMPLE HAZARDS/REI	MARKS	1		N		T							<u> </u>
NonRad			Preservation	None	None	Cook4C	Cool 4	C Cool 4C	Cool 4	С			
Special Handling and/or Storage			Type of Container	G/P	G/P	aG .	G	aC .	G				
Cool 4°C			No. of Container(s)	500 L	120m/.	60mL	6 1	L 60miL	23 2	L			<u> </u>
			Volume .		1		1		1	.			
000 1 8	MPLE ANALYSIS			See item () in Special Instruction	See item (2) in Special lastructions.	PCBu - 8082; Posticides - 8081;	VOA -	SOA Semi-VOA - EZ70A (TCL)	TPH (T	1) -			
	ıtrix *	Sample Date	Sample Time					Vi 1.52.24			731 Mar 1978		
J10FH7 OTHER	R SOLID (17/05	0820		X			X					
J10FH8 OTHER	R SOLID	175/05	0820		×	1		X					
J10FH9 OTHER	R SOLID	17/05	0930		×	×		V					1
J40EJO OTHE	R SOLID MA	7. 1		1									1
J10FJ1 OTHE	R-SOLID	11/22/05											
CHAIN OF POSSESSION		Sign/Print	Varnes	'	SPEC	IAL INSTE	UCTIO	NS			1		Matrix *
VEHICITED TO A VEHICA CO. L. LOUIS		eccived By/Stored		ate/Time 15 /3	3/1 (I) G	anna Spectro	всору (ТС	L List) (Cesium-13	7, Cobald 200-2411:	-60, Europium Americium-24	-152, Europium-1 11: Gross Alnha é	i 54, & Gross Beta:	S-Soil SE-Sullment 20-Solid
3728 Ref 20 (1/8/0	estime R	SCHOOL BY Spore	in 01	ite/Time	Nickel-63; Isotopic Platonium; Strontium-19,90 Total Sr; Technetium-99; Isotopic Uranium (Ura 233/234, Uranium-235, Uranium-238); Total Uranium (2) ICP Metals - 6010A (SW-846) (Aburnium, Antimony, Arsenic, Burium, Berytilum, Boron, Cadminim, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zine); Mercury - 7471 - (CV)					um (Uranium-	SI=Sindge W = Water O=Oil		
Communication of the state of t	of 1500	eceived By/Stores	ed EX	its/Time						ybdenum,	A-Air DS-Drum Solid DL-Drum Liqu		
Fel 119/05	0983	eceived By/Store	in 11-9-05	nte/Time 0935							•	T=Tissue Wi=Wips 1.=Liquid V=Vapstation	
Retinquished By/Removed From Date	e/Time Re	eccived By/Stores	in D	ite/Time									X=Other
Relinquished By/Removed From Date	e/Tinue Re	eceived By/Store	l In D	ste/Time	<u> </u>								
LABORATORY Received By SECTION				TR	}c	····				***		Date/Time	
FINAL SAMPLE Disposal Method DISPOSITION					· · · · · · · · · · · · · · · · · · ·	Dispo	sed By					Date/Time	

Washington Closu	re Hanford	C	HAIN OF CUST	ODV/S	AMPLE	ANALX	ZIZV	DE.	OHEST		R	C-030-026	Page 2	of 2
Collector STANKOVICH/HUDSON		Comp	nny Contact c Stankovich	Telephor 531-70	e No.	ANAL	, DIO	Proj	ect Coordin	e for	Price Code		Data Tu	rnaround
Project Designation Remaining Sites Confirmat	on Sampling - Other Sol		ling Location -D-50:9				•	SAF RC-0			Air Quali	ty 🗍	15	Days
Ice Chest No. FRL	-01-027		Logbook No. 1578		COA C10DR167	700			hod of Ship edEx	ment				
Shipped To EBERLINE SERVICES &	IONVILLE	Offsit	e Property No.	4060	109	-		Bill	of Lading/	Air Bill I	40. 5c	e OS	PC	
POSSIBLE SAMPLE HAZ	_		Preservation	None	Nonc	Cool 4C	Cool 4	4C	Cool 4C	Cool 40				
Special Handling and/or	Storage		Type of Container	G.E.	G/IP	эG	Ι.	Ý	aG	G				
Lool	_		No. of Container(s)	Stani	1 120mi.	1 60mL	60		1 60mL	. I 250mL				
		 	Volume	Section (1) in		PCB6 - 8082;	vok		Secal-VOA -	TPH (Tota		_	 	ļ
00019	SAMPLE ANA	LYSIS		Special Instructions	Special fostructions.	Pesticides - 8081; Chloro- Herbicides - EPASISI	V Fo		1270A (TCL)	418.1	, , , , , , , , , , , , , , , , , , ,			
Sample No.	Matrix *	Sample Date	Sample Time											
J10FJ2	OTHER SOLID	11/7/05	1200		X	X			X	X				
J10FJ3	OTHER SOUR	हिम ॥ निर्म			ļ		-			· · <u>-</u> · · ·				
· · · · · · · · · · · · · · · · · · ·				-										
	 				ļ				· -			-		-
CHAIN OF POSSESS	ION	Sign/Prin	t Names		SPEC	CIAL INSTR	UCTIO	DNS			<u> </u>		<u> </u>	Matrix *
Relinquished By/Removed From BULL HUDSON 6	Huda 117/98	Received By/Sto	1700 11 BS #30	17/05	Ewror	pium-1551; Gan	пла Ѕре	c - Add	l-on (America	am-241); .	Americken-241	: 52, Europium-1: : Gross Alpha &	. Gross Bets;	S=Self SE-Selfment SO=Selfs
3728 Re(2B)	11/8/05 1230	Received By/Sto	1/8		Nicke 233/2	el-63; (sotopic I 234, Uranium-2	Plutonium 35, Urani	n, Stroi ium-23	ntium-89,90 — 8); Total Urat	Total Sr. ' nom	Technetium-99	; Isotopie Urania n, Berylliam, Bo	m (Uranium-	SI-Gledge W = Water O-Off
Relinquished By/Removed From	11/6/02	Received By/Sto	1 EX	ate/Time	Cadn	mun, Calcium,	Chronaiu	en, Cob	salt, Copper, li	ron, Lead,	Magnesium, M	langunese, Moly arcury - 7471 - ((b dem ını,	A-Air DS-Drom Solid DE-Drom Liqui TeTimot
Relipque Special By Plannovel From	Date/Time /9 (05 093)	- Roccived By Sign	error uttos	ete/Tame	35									Wi-Wipe L-Liquid V-Vegetation
Refinquished By/Removed From	Date/Time	Received By/Sto	red fin	uje/Time	<u>.</u>				•				•	X-Other -
Relinquished By/Removed From	Date/Time	Received By/Sto	red in D	ate/Time									·	
LABORATORY Received SECTION	Ву	<u> </u>		Ti	lle								Date/Time	
FINAL SAMPLE Disposal	Method					Dispo	sed By						Date/Time	

Appendix 5

Data Validation Supporting Documentation

<u>V</u> ALIDATION LEVEL:	Α	В	(c)	D	Е
PROJECT: 10	10+D-50	:9	DATA PACKAG	E: 4009	6
VALIDATOR:	TLI	LAB: L	\mathcal{L}	DATE: 1/20	640
			SDG:	Kooge	
		ANALYSES I	PERFORMED		
6W-846/ICP	SW-846/GFAA	SW-846/Hg	SW-846 Cyanide		
SAMPLES/MAT	RIX	•			·
JIOF	25 21	OFH 7	JIOFHS	JOFF	7
Technical verificati		present?	CASE NARRATIV	TE .	So (,) N/A
			IBRATIONS (Lev	•	
Initial calibrations a		su uments /	••••••••••	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Yes No N/A
	-			***************************************	4
	-				Yes No N/A
				•••••	, , ,
					1 1
					, , , , , , , , , , , , , , , , , , ,
				•••••	4 1
Comments:					$\overline{}$
				n web st	, , , , , , , , , , , , , , , , , , , ,

3. BLANKS (Levels B, C, D, and E)	
ICB and CCB checks performed for all applicable analyses? (Levels D, E)	Yes No (1/A)
ICB and CCB results acceptable? (Levels D, E)	Yes No N/A
Laboratory blanks analyzed?	Ye No N/A
Laboratory blank results acceptable?	Yes No NA
Field blanks analyzed? (Levels C, D, E)	Yes(No)N/A
Field blank results acceptable? (Levels C, D, E)	
Transcription/calculation errors? (Levels D, E)	Yes No (N7)
Transcription/calculation errors? (Levels D, E)	no FB
4. ACCURACY (Levels C, D, and E)	
MS/MSD samples analyzed?	Ves No N/A
MS/MSD results acceptable?	
MS/MSD standards NIST traceable? (Levels D, E)	\sim
MS/MSD standards expired? (Levels D, E)	
LCS/BSS samples analyzed?	
LCS/BSS results acceptable?	/ /
Standards traceable? (Levels D, E)	
Standards expired? (Levels D, E)	, ,
Transcription/calculation errors? (Levels D, E)	
Performance audit sample(s) analyzed?	
Performance audit sample results acceptable?	Yes No 🚳
Comments: antimon - Jall M5 Silven - Jall Lcs	MO 745
	•

5. PRECISION (Levels C, D, and E)					
Duplicate RPD values acceptable?	No	N/A			
Ouplicate results acceptable? Yes N 1S/MSD standards NIST traceable? (Levels D, E)					
Field duplicate RPD values acceptable?	No	N/A			
Field split RPD values acceptable?	No	N/A			
Transcription/calculation errors? (Levels D, E)	No	N/A			
Comments: boron (1087.) - Jaly chromium (337 Jaly					
· · · · · · · · · · · · · · · · · · ·					
6. ICP QUALITY CONTROL (Levels D and E) ICP serial dilution samples analyzed?	Νo	N/A			
ICP serial dilution %D values acceptable?					
ICP post digestion spike required? Yes					
ICP post digestion spike values acceptable? Yes					
Standards traceable? Yes					
Standards expired?Yes					
Transcription/calculation errors?					
Comments:					
		,			

7. FURNACE AA QUALITY CONTROL (Levels D and E)			'
Duplicate injections performed as required?	Yes	No	/N/A
Duplicate injection %RSD values acceptable?	Yes	No	N/A
Analytical spikes performed as required?	Yes	No	N/A
Analytical spike recoveries acceptable?	Yes	No	N/A
Standards traceable?	Yes	No	N/A
Standards expired?	Yes	No	N/A
MSA performed as required?	Yes	No	N/A
MSA results acceptable?	Yes	No	N/A
Transcription/calculation errors?	Yes	No	N/A
Comments:			
	· · · · · · · · · · · · · · · · · · ·		
			•
8. HOLDING TIMES (all levels)	\mathcal{L}		
Samples properly preserved?	L X		
Sample holding times acceptable?	\Yes) No	N/A
Comments:		, —.–	
·		<u> </u>	
		-	<u> </u>
			<u> </u>

	_	ATION AND DETECTION LIMITS (all levels)	
Results repo	orted for all requested	d analyses?	Ye No N/A
Rresults sup	ported in the raw da	ta? (Levels D, E)	Yes No N/A
Samples pro	operly prepared? (Le	vels D, E)	Yes No NA
Detection li	mits meet RDL?		Yes (No) N/A
Transcription	on/calculation errors?	(Levels D, E)	Yes No (NA
Comments:	Silver	Con	
	Cadmin	Zara	
	Silver Cadmin Sekon	3 ores	
		·	

Appendix 6

Additional Documentation Requested by Client

INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/18/05

CLIENT: TNUHANPORD RC-030 K0096 WORK ORDER: 11343-606-001-9999-00

-	•				REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	FACTOR
***	******************	公司的政治的政治的	*****	****	****	
BLANK1	05L0657-MB1	Silver, Total	0.14 u	MG/KG	0.14	. 1.0
	,	Aluminum, Total	3.0 u	MG/KG	3.0	1.0
		Argenic, Total	0.34 u	MG/KG	0.34	1.0
	•	Boron, Total	0.27 u	MG/KG	0.27	1.0
		Barium, Total	0.02 u	MG/KG	0.02	1.0
		Beryllium, Total	0.02 u	MG/KG	0.02	1.0
•		Calcium, Total	2.6	MG/KG	1.2	1.0
		Cadmium, Total	0.07 u	MG/KG	0.07	1.0
	•	Cobalt, Total	0.12 u	MG/KG	0.12	1.0
		Chromium, Total	0.16 u	MG/KG	. 0.16	1.0
		Copper, Total	0.29 u	MG/KG	0.29	1.0
		Iron, Total	3.2 u	MG/KG	3.2	1.0
		Potassium, Total	5.5 u	MG/KG	5 5	1.0
		Magnesium, Total	1. 4 U	MG/KG	1.4	1.0
		Manganese, Total	0.02 น	MG/KG	0.02	1.0
		Molybdenum, Total	0.13 u	MG/KG	0.13	1.0
		Sodium, Total	0.67	MG/KG	0.17	1.0
		Nickel, Total	0.13 u	MG/KG	0.13	1.0
		Lead, Total	0.31 u	MG/KG	0.31	1.0
		Antimony, Total	0.40 u	MG/KG	0.40	1.0
		Selenium, Total	0.59	MG/KG	0.36	1.0
		Silicon, Total	0.82 ц	MG/KG	0.92	1.0
		Vanadium, Total	0.09 u	MG/KG	0.09	1.8
	•	Zinc, Total	0.05 u	MG/KG	0.05	1.0
BLANKI	05C0267-MB1.	Mercury, Total	0.02 u	MG/KG	0.02	1.0

INORGANICS ACCURACY REPORT 11/18/05

CLIENT: TNUHANFORD RC-030 K0096 WORK ORDER: 11343-606-001-9999-00

		•	SPIKED	INITIAL	SPIKED		DILUTION
SAMPLE	SITE ID	ANALYTE	SAMPLE	RESULT	AMOUNT	*RECOV	factor (spk)
	*************	***************					********
-001	J10FJ2	Silver, Total	4.3	0.85u	5.0	86.0	6.0
		Aluminum, Total	5780	5040	201	366.8*	3.0
		Arsenic, Total	188	2.1 u	201	93.6	6.0
	,	Boron, Total	97.0	12.1	101	84.4	6.0
		Barium, Total	265	71.4	201	96.1	6.0
		Beryllium, Total	4 . 0	0.061	5.0	96.0	3.0
	•	Calcium, Total	8990	6240	2520	109.1	6.0
		Cadmium, Total	4.6	0.43น	5.0	92.0	6.0
		Cobalt, Total	53.6	7.1	50.3	92.4	6.0
		Chromium, Total	30.3	13.4	20.1	84.1 .	6.0
	•	Copper, Total	. 39.1	17.6	25.1	85.7	3.0
		Iron, Total	19600	19600	101	-48. *	6.0
	•	Mercury, Total .	0.37	0.22	0.16	88.8	1.0
٠.٠	•	Potassium, Total	3490	1100	2520	95.3	6.0
		Magnesium, Total	6370	. 3930	252D	97.1	6.0
		Manganess, Total	344	298	50.3	90.5*	6.0
		Molybdenum, Total	92.6	1.0	101	91.1	6.0
		Sodium, Total	2600	176	2520	96.4	6.0
		Nickel, Total	59.3	9.7	50.3	98.6	6,0
		Lead, Total	67.1	16.3	50.3	101.0	€.0
		Antimony, Total	24.9	2.4 u	50.3	49.5	6.0
		Selenium, Total	189	2.2 u	201	93 . B	6.0
		Silicon, Total	434	352	101	81.4	6.0
•		Vanadium, Total	96.1	45.9	50.3	99.B	6.0
		Zinc, Total	113	71.1	50.3	84.1	€.0

INORGANICS PRECISION REPORT 11/18/05

CLIENT: TNUHANFORD RC-030 K0096 WORK ORDER: 11343-606-001-9999-00

		•	INITIAL			DILUTION
SAMPLE	SITE ID	ANALYTE	result	REPLICATE	RPD	factor (REP)
	第三天之下三三三三三三三三三三三三三三三三三三三三三三三三三三三三三三三三三三三	全民共享公司安州市中 市市市市市市市市市市市市市市市市市市	*==**=	£25655E88	======	EEVSERWESPE
-DOIREP	J10FJ2	Silver, Total	0.85u	0.851	NC	6.0
		Aluminum, Total	5040	4870	3.5	3.0
		Arsenic, Total	2.1 u	2.1 u	NC	6.0
		Boron, Total	12.1	3.6	108.3	6.0
		Barium, Total	71.4	72.7	1.B	6.0
		Beryllium, Total	0.06u	0.06u	NC	3.0
	•	Calcium, Total	6240	6470	3.6	6.0
•	•	Cadmium, Total	0.430	0.43u	ис	6.0
		Cobalt, Total	7.1	6 . 2	13.5	6.0
		Chromium, Total	13.4	9.6	33.0	. 6.0
		Copper Total	17.6	14.6	18.6	3.0
		Iron, Total	19600	19400	1.5	€.0
		Hercury, Total	0.22	0.23	3.9	1.0
	•	Potassium, Total	1100	1000	3.0	6.0
		Magnesium, Total	3930	3590	9.0	6.0
		Manganese, Total	298	270	10.1	6.0
		Molybdenum, Total	1.0	0.79u	يو معد	17 /m/g 6.0
		Sodium, Total	176	177	0.68	And 161
		Nickel, Total	9.7	8.6	12.0	6.0
		Lead, Total	16.3	13.2	21.0	6.0
		Antimony, Total	2.4 u	2.4 U	NC	6.0
		Selenium, Total	2.2 u	3.3	ورفي ستهلا	6.0
		Silicon, Total .	352	323	8.4 N	Milhiloz ero
	•	Vanadium, Total	45.9	47.9	4.3	6.0
		Zinc, Total	71.1	59.8	17.3	6.0

INORGANICS LABORATORY CONTROL STANDARDS REPORT 11/18/05

CLIENT: TNUHANPORD RC-030 K0096 WORK ORDER: 11343-606-001-9999-00

			SPIKED	SPIKED		
SAMPLE	SITE ID	ANALYTE	SAMPLE	AMOUNT	UNITS	*RECOV
*****	法基础 医电影 医电影 医电影 医电影 医电影 化二二二二二二二二二二二二二二二二二二二二二二二二二二二二二二二二二二二二		~ = = = + + +	****		****
LCS1	05L0657-LC1	Silver, LCS	49.0	50.0	MG/KG	98.0
		Aluminum, LCS	477	500	MG/KG	95.4
		Arsenic, LCS	932	1000	MG/KG	93.2
		Boron, LCS	482	500	MG/KG	96.3
		Barium, LCS	493	500	MG/KG	98.6
		Beryllium, LCS	24.1	25.0	MG/KG	96.4
		Calcium, LCS	2540	2500	MG/KG	101.7
		Cadmium, LCS	25.2	25.0	MG/KG	100.8
		Cobalt, LCS	248	250	MG/KG	99.1
		Chromium, LCS	50.5	50.0	MG/XG	101.0
		Copper, LCS	118	125	MG/KG	94.6
		Iron, LCS	507	500	MG/KG	101.3
		Potassium, LCS	2400	2500	MG/KG	96.1
		Magnesium, LCS	2450	2500	MG/KG	98.0
	•	Manganese, LCS	78.5	75.0	NG/KG	104.7
	•	Molybdenum, LCS	500	500	MG/KG	100
•	•	Sodium, LCS	2420	2500	MG/KG	96.8
		Nickel, LCS	199	200	MG/KG	99.6
		Lead, LCS	250	250	MG/KG	99.8
		Antimony, LCS	295	300	MG/KG	98.2
		Selenium, LCS	901	1000	NG/KG	90.1
		Silicon, LCS	214	500	MG/KG	42.7
•		Vanadium, LCS	248	250	MG/KG	99.2
		Zine, LCS	99.2	100	MG/KG	99.2
LCS1	05C0267-LC1	Mercury, LCS	6.8	6.2	NG/KG	109.7

Date:

2 February 2006

To:

Washington Closure Hanford Inc. (technical representative)

From:

Project:

Remaining Sites Confirmation Sampling - Other Solid - Waste Subsite

is 100-D-50:9

Subject: Semivolatile - Data Package No. K0096-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K0096 prepared by Lionville Laboratory Inc. (LLI). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

: Sample D	Meanniale Daney	CAN AVIEW AND TO	i Validation	1 Date
J10FJ2	11/7/05	Solid	С	See note 1
J10FH7	11/7/05	Solid	С	See note 1
J10FH8	11/7/05	Solid	С	See note 1
J10FH9	11/7/05	Solid	С	See note 1

^{1 -} Semivolatiles by 8270C.

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, February 2005). Appendices 1 through 5 provide the following information as indicated below:

- Appendix 1. Glossary of Data Reporting Qualifiers
- Appendix 2. Summary of Data Qualification
- Appendix 3. Qualified Data Summary and Annotated Laboratory Reports
- Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
- Appendix 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

· Holding Times

Analytical holding times were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Samples must be extracted within 14 days of the date of sample collection and analyzed within 40 days from the date of extraction.

If holding times are exceeded, but not by greater than two times the limit, all associated sample results are qualified as estimates and flagged "J" for detects and "UJ" for non-detects. If holding times are exceeded by greater than two

times the limit, all associated detectable sample results are qualified as estimates and flagged "J" and all non-detects are rejected and flagged "UR".

All holding times were met.

Method Blanks

Method blank analyses are conducted to determine the extent of laboratory contamination introduced through sampling, sample preparation and analysis. At least one acceptable method blank analysis must be conducted for every 20 samples. No contaminants should be present in the method blank. Analytical results for analytes present in any sample at less than five times the concentration of that analyte found in the associated blank are qualified as non-detects and flagged "U". Common laboratory contaminants present in samples at less than ten times the concentration of that analyte found in the associated blank are qualified as non-detects. If a sample result is less than the CRQL and is less than five times (or less than ten times for lab contaminants) the highest associated blank result, the sample result value is raised to the CRQL level and qualified as undetected "U".

Due to method blank contamination, the bis(2-ethylhexyl)phthalate result in all samples was qualified as undetected, raised to the RQL and flagged "U".

All other method blank results were acceptable.

Field Blanks

No field blanks were submitted for analysis.

Accuracy

Matrix Spike/Matrix Spike Duplicate & Blank Spike Recoveries

Matrix spike/matrix spike duplicate analyses are used to assess the analytical accuracy of the reported data and the effect of the matrix on the ability to accurately quantify sample concentrations. Matrix spike/matrix spike duplicate analyses are performed in duplicate using five compounds for which percent recoveries must be within a range of 50-150% or within laboratory control limits. If spike recoveries are outside control limits, detected sample results less than five times the spike concentration are qualified as estimates and flagged "J". Undetected sample results with spike recoveries below control limits are qualified as estimates and flagged "UJ". Undetected sample results are not qualified if the

spike recovery is above control limits. Sample results greater than five times the spike concentration require no qualification.

Due to matrix spike (55%) and LCS (56%) recoveries outside QC limits, all ideno(1,2,3-cd)pyrene results were qualified as estimates and flagged "J".

All other accuracy results were acceptable.

Surrogate Recovery

The analyses of surrogate compounds provide a measure of performance for individual samples. Matrix-specific surrogate compound recovery control windows have been established by the EPA CLP program. If two surrogates of the same class of compounds (base/neutral or acid) are out of control limits, all associated sample results greater than the contract required quantitation limit (CRQL) are qualified as estimates and flagged "J". Sample results less than the CRQL and below the lower control limit are qualified as estimates and flagged "UJ". Sample results less than the CRQL with recoveries above the upper control limit require no qualification. If a surrogate recovery is less than 10%, detects are qualified as estimates and flagged "J" and nondetects are rejected and flagged "UR".

All surrogate results were acceptable.

Precision

Matrix Spike/Matrix Spike Duplicate Samples

Matrix spike (MS)/matrix spike duplicate (MSD) results provide matrix-specific information on the precision of the method for specific target compound classes. Precision is expressed by the relative percent difference (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample. Samples results must be within RPD limits of +/-30%. If RPD values are out of specification and the sample concentration is less than five times the spike concentration, all associated detected sample results are qualified as estimates and flagged "J". If RPD values are out of specification and the sample concentration is greater than five times the spike concentration, no qualification is required.

All precision results were acceptable.

Field Duplicate Samples

No field duplicates were submitted for analysis.

Analytical Detection Levels

Reported analytical detection levels are compared against the required quantitation limits (RQL's) to ensure that laboratory detection levels meet the required criteria. All undetected analytes in samples J10FH7 and J10FH8 and eight analyes exceeded the RQL in both J10FJ2 and J10FH9. Under the BHI statement of work, no qualification is required. All other analytes met the RQL.

Completeness

Data package No. K0096-LLI was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

The following minor deficiencies were noted:

- Due to method blank contamination, the bis(2-ethylhexyl)phthalate result in all samples was qualified as undetected, raised to the RQL and flagged "U".
- Due to matrix spike (55%) and LCS (56%) recoveries outside QC limits, all ideno(1,2,3-cd)pyrene results were qualified as estimates and flagged "J".

Data flagged "J" indicates that the associated concentration is an estimate, but under the BHI statement of work, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

All undetected analytes in samples J10FH7 and J10FH8 and eight analyes exceeded the RQL in both J10FJ2 and J10FH9. Under the BHI statement of work, no qualification is required.

REFERENCES

WCH, Contract #20266, Validation Statement of Work, Washington Closure Hanford Incorporated, July 7, 2003.

DOE/RL-96-22, Rev. 4, 100 Area Remedial Action Sampling and Analysis Plan, U.S. Department of Energy, February 2005.

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with the BHI validation SOW are as follows:

- Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the same quantitation limit corrected for sample dilution and moisture content by the laboratory.
- UJ Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.
- Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.
- R Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.
- UR Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.
- NJ Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).
- Indicates presumptive evidence of a compound. The data may not be valid for some specific applications usable for decision-making purposes).

Summary of Data Qualification

SEMIVOLATILE DATA QUALIFICATION SUMMARY*

SDG: KÖ096		Project: 100-B-50:9	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Bis(2-ethylhexyl)phthalate	U at RQL	All	Blank contamination
Ideno(1,2,3-cd)pyrene	J	All	MS & LCS recovery

^{* -} The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Qualified Data Summary and Annotated Laboratory Reports

Project: WASHINGTON CLOS	}									
Laboratory: LLI		K0096		1						
Sample Number		J10FJ2		J10FH7		J10FH8		J10FH9		
Remarks										
Sample Date		11/7/05		11/7/05		11/7/05		11/7/05		
Extraction Date		11/15/05		11/15/05		11/15/05		11/15/05		
Analysis Date		11/16/05		11/16/05		11/16/05		11/16/05		
Semivolatile (8270C)	RQL	Result	a	Result	Q	Result	Q	Result	Q	
Phenol	660	360	U	1600	Ü	1500	-	350	U	
bis(2-Chloroethyl)ether	660	360	U	1600	حا	1500		350	U	
2-Chlorophenol	660	360	ا	1600	٦,	1500	د	350	Ü	
1,3-Dichlorobenzene	660	360	U	1600	U	1500	U	350	U_	
1,4-Dichlorobenzene	660	360	_	1600	U	1500	U	350	U	
1,2-Dichlorobenzene	660	360		1600	U	1500	IJ	350	U	
2-Methylphenol	660	360		1600	Ū.	1500	U	350	U_	
2,2'-oxybis(1-chloropropane)	660	360	U	1600	ادا	1500		350		
4-Methylphenol	660	360		1600	J	1500	U	350	U	
N-Nitroso-di-n-propylamine	660	360	U	1600	U	1500	U	350	U	
Hexachloroethane	660	360	U	1600	U	1500	U	350	IJ	
Nitrobenzene	660	360	د	1600	دا	1500	U	350	U	
Isophorone	660	360	رد	1600	U	1500	U	350	υ	
2-Nitrophenol	660	360		1600		1500	U	350	C	
2,4-Dimethylphenol	660	360		1600	Ü	1500	υ	350	U_	
bis(2-Chloroethoxy)methane	660	360		1600	احا	1500		350	כ	
2,4-Dichlorophenol	660	360		1600	ט	1500	U	350	U	
1,2,4-Trichlorobenzene	660	360		1600	U	1500		350	U	
Naphthalene	660	360		1600	U	1500	U	350	U	
4-Chloroaniline	660	360	_	1600	_	1500	U	350	U	
Hexachlorobutadiene	660	360		1600		1500		350	_	
4-Chioro-3-methylphenoi	660	360					U	350		
2-Methylnaphthalene	660	360			U	1500		350		
Hexachlorocyclopentadiene	660	360		1600	_	1500		350		
2,4,6-Trichlorophenol	660	360		1600			U	350	_	
2,4,5-Trichlorophenol*	660	910	_	4100			U	870		
2-Chloronaphthalene	660	360	_	1600		1500		350		
2-Nitroaniline*	660	910		4100	U	3800		870	υ	
Dimethylphthalate	660	360		1600		1500		350	υ	
Acenaphthylene	660	360		1600		1500		350		
2,6-Dinitrotoluene	660	360	U	1600	U	1500	U	350	U	

Project: WASHINGTON CLOS	IIRE H	1							
Laboratory: LLI		K0096		1					
Sample Number	<u> </u>	J10FJ2		J10FH7	_	J10FH8		J10FH9	
Remarks				3.5		3.01.10		3101710	
Sample Date		11/7/05		11/7/05		11/7/05		11/7/05	
Extraction Date		11/15/05		11/15/05		11/15/05		11/15/05	
Analysis Date		11/16/05	-	11/16/05		11/16/05		11/16/05	
Semivolatile (8270C)	RQL	Result	Q	Result	Q	Result	Q	Result	Q
3-Nitroaniline*	660	910	_	4100	U	3800	U	870	
Acenaphthene	660	22		1600	U	1500	Ü	350	U
2,4-Dinitrophenol*	660	910	U	4100	U	3800	U	870	
4-Nitrophenol*	660	910	٦	4100	Ü	3800	υ	870	
Dibenzofuran	660	360	υ	1600	IJ	1500	บ	350	U
2,4-Dinitrotoluene	660	360	ľ	1600	Ū	1500	U	350	
Diethylphthalate	660	360	C	1600	U	1500	Ú	350	U
4-Chlorophenyl-phenyl ether	660	360	U	1600	Ü	1500	Ü	350	U
Fluorene	660	360	U	1600	U	1500	Ü	350	
4-Nitroaniline*	660	910	U	4100	Ù	3800	U	870	υ
4,6-Dinitro-2-methylphenol*	660	910		4100	۲	3800	U .	870	U
N-Nitrosodiphenylamine	660	360		1600	د	1500	U	350	υ
4-Bromophenyl-phenyl ether	660	360		1600	د	1500	C	350	U.
Hexachiorobenzene	660	360		1600	Ü	1500	υ	350	U
Pentachlorophenol*	660	910	J	4100	د	3800	د	870	۲
Phenanthrene	660	170		250		88		350	
Anthracene	660	35		1600		1500		350	
Carbazole	660	20		1600	_	1500	_	350	U
Di-n-butylphthalate	660	360	U		υ		כ	20	
Fluoranthene	660	260		600		230		350	U
Pyrene	660	320		760		300		350	
Butylbenzylphthalate	660	360		210		100		350	
3,3'-Dichlorobenzidine	660	360	<u>u</u>	1600	U_	1500	U	350	
Benzo(a)anthracene	660	160		640		270		350	
Chrysene	660	210		650		290		350	_
bis(2-Ethylhexyl)phthalate	660	660		660	_	660		660	
Di-n-octylphthalate	660	360	U		U		ប	350	
Benzo(b)fluoranthene	660	150		710		340		350	
Benzo(k)fluoranthene	660	150		650		310		350	
Benzo(a)pyrene	660	160		760		360		350	_
Indeno(1,2,3-cd)pyrene	660	78	J	390	J	160		350	
Dibenz(a,h)anthracene	660	26		94			U	350	
Benzo(g,h,i)perylene	660	92		400		230		350	U_

Report Date: 11/18/05 11:23

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

	Cust ID:	J10 F J2	2	J10FH7	7	J10FH8	:	J10 F H9)	J10FH	9	J10FH	19
Sample	RFW#:	001	L	.002	t	003		004		004 M	3	004 MS	iD.
Information	Matrix:	SOLID		SOLID		SOLID		SOLID		SOLID		SOLID	
	D.F.;	1.0	00	4.0	0 (4.0	0	1.0	0	1.0	00	1.	.00
	Units:	ug/i	ζg	ug/I	(g	ug/K	g	ug/K	g	ug/l	(g	ug/	Kg
	Nitrobenzene-d5	59	ક	60	₹.	59	ł	59	₹	70	*	70	*
Surrogate	2-Fluorobiphenyl	62	£	57	ક્ષ	57	*	61	¥	70	*	72	¥
Recovery	Terphenyl-d14	83	¥	. 65	ક્ર	69	ક	81	*	69	₹ .	72	ક
	Phenol-d5	75	*	71	ક્ર	70	ક	79	*	69	*	73	ક
	2-Fluorophenol	62	*	66	ક્ર	63	*	65	ક	66	*	66	*
	2,4,6-Tribromophenol	66 	* ==£1	57	% :=fl:	57	*	60	*	78	*	. 81	*
Phenol		360	ם בבנו	1600	Ω. ETT	1500	Ω -=II=	======================================	=fl=: U	73	=±±=: لا	***====== 81	===£ *
bis (2-Chloroe	thyl)ether	360	U	1600	Ū		Ū	350	Ū	72	ę.	76	8
z-unioropneno	1	360	υ	1600	U	1500	U	350	Ū	71	8	76	8
1,3-Dichlorob	enzene	360	מ	1600	Ū	1500	U	350	Ū	. 63	ž	67	*
1,4-Dichlorob	enzene	360	U	1600	U	1500	Ū	350	Ū	62	ક	66	કુ
1,2-Dichlorob	enzene	360	U	1600	U	1500	U	350	Ū	66	*	70	9
2-Methylpheno	1	360	Ü	1600	U	1500	์ บ	350	Ū	73	ş	81	કુ
	-Chloropropane)	360	U	1600	U	1500	U	350	U	73	8	76	\$
4-Methylpheno	1	360	U	1600	U	1500	Ū	350	Ū	75	¥	86	8
N-Nitroso-di-	n-propylamine	360	U	1600	U	1500	U	350	Ū	75	*	82	*
Hexachloroeth	ane	360	U	1600	U	1500	U	350	U	59	ક	64	g.
Nitrobenzene_		360	U	1600	U	1500	Ū	.350	Ü	71	*	74	ક
Isophorone		360	U	1600	Ū	1500	ប	350	U	84	¥	89	ક
z-microbitemor		360	U	1600	U	1500	U	350	U	7 3	*	77	ક
2,4-Dimethylp	henol	360	Ū	1600	Ū	1500	Ū	350	Ū	68	*	76	*
bis (2-Chloroe	thoxy) methane	360	U	1600	Ū	1500	U	350	Ū	75	¥	80	ક
2,4-Dichlorop	henol	360	U	1600	Ŭ	1500	U	350	Ü	76	8	84	ક
1,2,4-Trichlo	robenzene	360	ū	1600	U	1500	Ų	350	U	67	& .	70	ž
Naphthalene		360	מ	1600	U	1500	Ū	350	U	68	*	71	F
	ne	360	Ū	1600		1500	U	350	Ū	85	¥	93	ક
Hexachlorobut	adiene	360	U	1600		1500		350	U	72	*	75	*
4-Chloro-3-me	thylphenol	360	U	1600		1500		350	Ü	77	*	88	ð
2-Methylnapht	halenelopentadiene	360	U	1600		1500		350	Ū	75	*	81	ક
Hexachlorocyc	lopentadiene	360	Ū	1600		1500		350	U	44	*	45	ક્ર
2,4,6-Trichlo	rophenol	360	Ū	1600		1500		350	U	76	*	84	ક
2,4,5-Trichlo	rophenol	910	U	4100	Ŭ	3800	U	870	บ	77	욯	86	* *

1/31/04

ם	8000
各	901
\$	Ø
*	9

WEAR DOCCIT BRITINGS: ASYTHALY		CITCHE: IMURANBURD RC-UDU RUUYO WOLK ULGEL: 11343606001									rage: 1b	
Cust ID	: J10FJ 2	}	J10FH7	•	J10PH8	3	J10FH9		J10FH9	•	J10FH	19
RFW#	: 000		002		003	3	004		004 MS	}	004 MS	30
2-Chloronaphthalene	360	Ū	1600	U	1500	U	350	Ū	73	¥	79	_
2-Nitroaniline		U	4100	U	3800	υ	870	ប	83	*	93	
Dimethylphthalate	360	U	1600	U	1500	Ŭ	350	ប	78	*	. 89	
Acenaphthylene	360	U	1600	U	1500	U	350	ប	73	ક્ષ	81	
2,6-Dinitrotoluene		U	1600	U	1500	U	350	U	79	§.	88	
3-Nitroaniline	910	υ	4100	U	3800	ប	870	U	91	*	103	
Acenaphthene	22	J	1600	U	1500	Ū -	350 ·	U	73	ક	81	
2,4-Dinitrophenol	910	υ.	4100	Ū	3800	U	870	U	26	욯	29	
4-Nitrophenol	910	U	4100	Ū	3800	Ū	870	U	75	*	88	
Dibenzofuran	360	σ	1600	Ü	1500	U	350	U	74	*	83	
2,4-Dinitrotoluene	360	Ū	1600	U	1500	U	. 350	U	80	¥	93	
Diethylphthalate	360	U	1600	U	1500	U	350	U	78	*	88	
4-Chlorophenyl-phenylether	360	ט	1600	Ü	1500	Ū	350	Ū	72	*	80	
Fluorene		΄ U	1600	Ü	1500	ប	350	ซ	75	ž	84	
4-Nitroaniline	910	υ	4100	U	3800	U	870	U	82	*	94	
4,6-Dinitro-2-methylphenol	910	Ū	4100	U	3800	<u></u> ד	870	U	47	윻	. 59	
N-Nitrosodiphenylamine (1)	360	Ū	1600	U	1500	υ	350	U	65	*	72	
4-Bromophenyl-phenylether	360	U	1600	U	1500	U,	350	. U	67	8	75	
Hexachlorobenzene	: 360	Ū	1600	U	1500	U	350	Ū	73	*	81	
Hexachlorobenzene Pentachlorophenol Phenanthrene	910	ט	4100	U	3800	U	870	Ū	76	£ .	88	
Phenanthrene	: 170	J	250	J	88	J	350	Ū	75	ł	83	
Anthracene .	35	J	1600	U	1500	U	350	U	76	¥	85	
Carbazole Di-n-butylphthalate Fluoranthene	20	J	1600	U	1500	U	350	U	83	કૃ	92	
Di-n-butylphthalate	360	U	1600	U.	1500	บ	20	J	81	*	91	
Fluoranthene	260	J	600	J	230	J	350	U	85	¥	93	
Pyrene	320	J	760	J	300	J	350	Ü	69	*	. 77	
Butylbenzylphthalate	360	Ü	210	J	100	J .	350	Ū	7 7	*	83	
3,3'-Dichlorobenzidine	360	U	1600	U	1500	υ	350	U	90	*	100	
Benzo(a) anthracene	160	J	640	J	270	J	350	Ū	77	*	85	
Chrysene	210	J.	650	J	290	J	350	Ū	74	옿	80	
bis(2-Ethylhexyl)phthalate	(, ko 3 20 .				(16 340)	JUB U	(150 150 L	JUB U	86	ł	91	
Di-n-octyl phthalate	36òº	บั"	1600′	"Ť	1500	ື້ ບົ	350՝'	Ü	121	የ	129	
Benzo(b)fluoranthene			710	J	340	J	350	U	81	ቼ	89	
Benzo(k)fluoranthene	150	J	650		310		. 350	U	83	*	89	
Benzo(a)pyrene	160,	<u> </u>	760	J J	360	<u>J</u>	350	U	72	왐	80	
Indeno(1,2,3-cd)pyrene	78	多丁		J 7	160	DIA I	350	UJ	55 *	*	67	
Dibenz (a,h) anthracene		'y	94	1137.	1500	"	350	ប	56	*	68	
Benzo(g,h,i)perylene	92	J.	400	J	230		350	FT	50	*	61	

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Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 11/18/05 11:23 Client: TNUHANFORD RC-030 K0096 Work Order: 11343606001 Page: 2a RFW Batch Number: 0511L671

	Cust ID:	SBLKOK		SBLKQK BS					
Sample	RFW#:	05LE0901-	MB1	05LE0901-ME	1				
Information	Matrix:	SOIL		SOIL					
•	D.F.:	1.9	00	1.00					•
	Units:	ug/l	Kg	ug/Kg					
	Nitrobenzene-d5	62	ŧ	66	*				
Surrogate	2-Fluorobiphenyl	· 58	¥	65	ಕ .			-	
Recovery	Terphenyl-d14	87	ક	67	*		•	•	
	Phenol-d5	71	*	65	8				
	2-Fluorophenol	64	*	63	ક્ષ				
	2,4,6-Tribromophenol	. 62	*		*				
Phenol	经工作的 计可数据数据 电电子电子 化二甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基甲基	330	fl U		fl==== {	======f]	====fl===		-fl====================================
	ethyl)ether	_ 330			* *				
	ol	_		68	ે ક				
	benzene	_ 330		63	*				
	benzene	_ 330		62	* *				
	benzene	330		67	ક	_ /			
2-Methylphen		330		69	*	Ω			
2,2'-oxybis(1-Chloropropane)	330		70	*				
Machaelahan	^]	330		71	ę.	17			
N-Nitroso-di	-n-propylamine	330			r F	121/06			
Hexachloroet	hane	330			*	1016			
		330			*	115			
Isophorone		330			¥	1 1		•	
2-Nitropheno	1	330			ક				
2,4-Dimethyl		330			*				•
	ethoxy) methane	330			8				
2,4-Dichloro		330			ક				
	orobenzene	330			f				
Naphthalene		330			*				
4-Chloroanil:	ine	330	U		*				
Hexachlorobu	tadiene	330	Ū	71	*				
4-Chloro-3-m	ethylphenol	330			*				
2-Methylnaph			Ū		ફ		•		
	clopentadiene	330			*				
2,4,6-Trichle		330			*				
	orophenol	830			*				

00000010

Indeno(1,2,3-cd)pyrene_

Dibenz (a,h) anthracene_

SBLKQK BS

	RFW#:	05LE0901-M	B1	05LE0901-1	Œ1		•
2-Chloronaphthalene		330	σ	67	*		
2-Nitroaniline			Ū	75	*		
Dimethylphthalate		330	U	71	*		
Acenaphthylene		330	U	68	*		
2,6-Dinitrotoluene		330	Ū	72	*		
3-Nitroaniline		830	U	80	*		
Acenaphthene		330	U	69	*		
2,4-Dinitrophenol		830	U	36	*		
4-Nitrophenol		830	Ū	69	*		
Dibenzofuran		330	U	69	ક્ર		
2,4-Dinitrotoluene		330	Ū	73	욯		
Diethylphthalate		330	U	71	웋		
4-Chlorophenyl-phenylether		330	Ū	67	*		
Fluorene		330	ប	69	*		• •
Fluorene 4-Nitroaniline		830	U	70	울		
4.6-Dinitro-2-methylphenol		. 83V	Ū	61	욯		
N-Nitrosodiphenylamine (1)		. 330	U	61	¥		•
4-Bromophenyl-phenylether		330	U	66	*		,
Hexachlorobenzene		330	U	68	ક		
Pentachlorophenol		830	Ū	79	· %		
Phenanthrene		330	U	71	*		
Anthracene		330	U	73	¥		
Carbazole Di-n-butylphthalate		330	Ū	64	¥	21	
Di-n-butylphthalate		330	U	76	*	$1/\mathcal{U}$:
Fluoranthene		330	U	77	웋	V	
Pyrene		330	Ü	68	¥		
Pyrene		330	Ū	73	*	1/3/104	
3,3'-Dichlorobenzidine		330	U	81	돹	1/2/1	
Benzo(a) anthracene		330	Ū	72	¥	11/	
Chrysene		330	Ū	73	*	I	
bis(2-Ethylhexyl)phthalate_		99	J	76	ક		
Di-n-octyl phthalate		330	U	88	ક		i .
Benzo(b) fluoranthene		330	U	74	8		
Benzo(k) fluoranthene		330	Ū	76	ł		
Benzo(a)pyrene		330	Ū	72	*		
- 1 - /2 A A - 31 - 31 - 3							

56 * %

57

Benzo(g,h,i)perylene 330 U 53 %
(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

330 U

330 U

Laboratory Narrative and Chain-of-Custody Documentation



Case Narrative

Client: TNU-HANFORD RC-030

LVL#: 0511L671

SDG/SAF # K0096/RC-030

W.O. #: 11343-606-001-9999-00

Date Received: 11-09-2005

SEMIVOLATILE

Four (4) solid samples were collected on 11-07-2005.

The samples and their associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3540C on 11-15-2005 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 11-16-2005.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

- 1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
- 2. Samples were extracted and analyzed within required holding time.
- 3. Non-target compounds were detected in the samples.
- 4. Samples J10FH7 and J10FH8 required a 2-fold dilution and both samples were analyzed using 2mL final volume due to the nature of the sample matrix. A copy of the Sample Extraction Record has been enclosed.
- 5. All surrogate recoveries were within acceptance criteria.
- 6. One (1) of one hundred twenty-eight (128) matrix spike recoveries was outside acceptance criteria. One (1) of sixty-four (64) blank spike recoveries was outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
- 7. The method blank contained the common laboratory contaminant Bis (2-Ethylhexyl) phthalate at a level less than the CRQL.
- 8. Internal standard area and retention time criteria were met.
- 9. Manual integrations are performed according to SOP QA-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").
- 10. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
- 11. I certify, that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data, contained in this hard-copy data package, has been authorized, by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels

-Laboratory Manager

Lionville Laboratory Incorporated

Date

som\gorup\data\bna\tmu-hanford\0511-671.doc
The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 2 0 pages.

Initiator: Jn Doley	Batch: 05/1/28		Parameter:	0625H
Date: 17 Nov 2005	Samples: MS 4		Matrix:	50/1d
Client: TNU	Method: xw846mc/	AWW/CLP/	Prep Batch:	056E0901
	Error Client Re		oler Error on C-C	
b. General Discrepancy		,		
Missing Sample/Extract Co		Wrong Samp		Label ID's Illegible
Hold Time Exceeded Ins Improper Bottle Type No	ufficient Sample t Amenable to Analysis	Preservation	vvrong	Received Past Hold
Note: Verified by [Log-In] or [Prep Group] (circ	le)signature/date;			
c. Problem (Include all relevant specif		necessary)		
2 37 2.19		,		
	i.			
2. Known or Probable Causes(s)	 			
		*		
3. Discussion and Proposed Action	Other Descr	ntion:		
Re-log	04101 00001	puon.		
Entire Batch		•		·
Following Samples: Re-leach	NAKA	ATE		
Re-extract	7			
Re-digest Revise EDD	<i>[[]</i>		•	
Change Test Code to	_ //			
Place On/Take Off Hold (circle)		A		· · · · · · · · · · · · · · · · · · ·
4. Project Manager Instructionssigna	ture/date:	11/2/	05_	
Concur with Proposed Action Disagree with Proposed Action; Se	ee Instruction			
Include in Case Narrative				
Client Contacted: Date/Person				
Add	<u>. </u>			
Cancel				
5. Final Actionsignature/date:	W 11/2/10	Other Explanation	n:	
Verified re-[log][leach][extract][dige Uncluded in Case Narrative	st][analysis] (circle)			
Hard Copy COC Revised				
Electronic COC Revised				
EDD Corrections Completed	t Englished adelesi to f	na omnalalist dan di	- dulle a star and a star at d	M49
When Final Action has been recorded	<u> </u>			
Route Distribution of <u>Completed</u> SDR X Initiator		Route Distribution (Metals: B	of <u>Completed</u> Si ceale	JK
X Lab General Manager M Ta	ayior	Inorganic	: Perrone	
X Project Mgr. Stone/Johnson		GC/LC: k	üger\	
Data Management Stilwell Sample Prep: Beegle/Kiger	l	Log-in: P	alak Daley	
Cample Fiep. Decylorage		Admin:		
		Other:	•	,
QA-10 5-A -0805		200040		

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: 05M5363

Washington Closu	re Hanford	CH	IAIN OF CUS	TODY/SA	MPLI	EANAL	YSIS	REQUE	ST	RC	C-030-026	Page]	of <u>2</u>
Collector STANKOVICH/HUDSON			ny Contact Stankovich	Telephone 531-762				Project Coo KESSNER,		Price Code	9C		rnaround .
Project Designation Remaining Sites Confirmation	on Sampling - Other Solid		ng Location D-50:9	· 		,		SAF No. RC-030		Air Qualit	y 🗆	15	Days -
Ice Chest No. AF	5-04-120	Field L EL-1	ogboek No. 578		COA CIODRI6	700		Method of S FedEx	bloment .				0 0 0
Shipped To EBERLINE SERVICES/L	IONVILLE	Offsite	Property No.	40601	08			Bill of Ladi	ng/Air Biji	No. ee OS	AC		o o
POSSIBLE SAMPLE HAZ		·							1				
NonRed			Preservation	None	None	Cookec	Cool				·		<u> </u>
Special Handling and/or]	Type of Container	G/P .	G/P	aG	G	RG	G	-	 		
Cool 40	c	1	No. of Container(s)	500 J.	120mL	60mi			2.5 m				
· · · · · · · · · · · · · · · · · · ·			Volume										
.0002C	Sample analy	SIS		See Hem (14 in 15 Special Instruction	Sec item (2) in Special Instructions	PCBs - 8082; Posticides - 8081;	VOA - (TC	SOA Somi-VOA B27GA (TO		1) -			
Sample No.	Matrix *	Sample Date	Sample Time		12-H 1-44						1000		
J10FH7	OTHER SOLID	11/7/05	0820	•	X	x		X					
J10FH8	OTHER SOLID	11/2/05	0820		X	\ \		X				·	
J10FH9	OTHER SOLID	11/7/05	6930		Х	ζ,		V					
J40E J0	OTHER SOLID	nd in											
J10FJ1	OTHER SOLID	11/8/103											
CHAIN OF POSSESSIO		Sign/Print			SPEC	CIAL INSTR	UCTIO	NS				'	Matrix *
Relinguished By/Removed From	Date/Time 1330	Received By/Stores	, , ,	pte/Time 95 /33	Ø (0) a	amma Spectros	icopy (TC	CL List) (Cesium	-137, Cobalt-	60, Europium-15:	2, Europium-15	I,	S-Soil SE-Setiment
Relinquished By/Removed From	Date/Time			ate/Time	Nicke	:1-63; Isotopic F	·lutopium	Strontium-89,9) - Total Sr.	Americium-241 ; (Technetium-99 ; L	Gross Alpha & C ratopic Uraniam	Jross Beta; (Uranium-	SG=Solid SI=Sindex
3729 Ref 20	118/05 1000	Received By/Stone		05 100	233/2	34, Uranium-23	35, Uranii	em-238}; Total C	Janium	Arsenic, Barium,			W = Water C=Oil
Relinquished By/Removed From	Dete-Time	Received By/Stored	ed Ex	ate/Time	Cadn	nium, Calcium, (Chromica	n, Cobalt Copos	r. Iron, Lead.	Magnesium, Mai ium, Zinc), Men	renseue, Moisho	lenom	A=Alr DS=Drum Solida DL=Drum Liquida
Relinguighed Sy/Removed From	Date/Time	Received By/Stored	in D	ate/Time									T=Time W(=Wips L=Liquid
Relinquished By/Removed From	Date/Time	Received By/Stores		ate/Time						•			V=Vogetation X=Other
Ralinquished By/Removed From	Date/Time	Received By/Stores	i in D	ale/Time				•					
LABORATORY Received B SECTION	у			Tiele							D	late/Time	
FINAL SAMPLE Disposal M DISPOSITION	lethod					Dispo	sed By				I	Date/Time	
DU SE 044 (0000/0005)		, ·								·			

Washington Closure	e Hanford	CI	IAIN OF CUST	ODY/S	SAMPL	E ANAL	YSIS	RE	QUEST	Γ	RC	-030-026	Page 2	of 2
Collector STANKOVICH/HUDSON			av Contact Stankovich	Telepho 531-7					iect Coordi SNER, JH	nator P	rice Code	9C		reeround
Project Designation Remaining Sites Confirmation	n Sampling - Other Soli		ng Location D-50:9	1.51		·			F No. 030	A	ir Quality		15	Days
Ice Chest No. EQL-	-01-027	Field 1 EL-1	ogbook No. 578		COA CIODRI	6700			hod of Shir edEx	ment				
Shipped To EBERLINE SERVICES (LIC	ONVILLE	Offsite	Property No.	4060	109			Bill	of Lading	'Alr Bill No	See	2 DS	PC	
POSSIBLE SAMPLE HAZAI			Preservation	None	Non:	Coal 4C	Cool	ю,	Cool 4C	Coel 4C				
Special Handling and/or S	torage		Type of Container	GA	G/P	aG		Ì	AG	G				
Lool 4	(فر		No. of Container(s) Volume	A Par	120mL	60mL	605	7	60mL	250ml.				<u> </u>
Special Handling and/or St	SAMPLE ANAL	YSIS		Success (1) is special transvections.	See item (2) Special Instructions	Pesticides -	10		Secil-VOA - 8276A (TCL)	TPH (Total) - 412.1				
Sample No.	Matrix *	Sample Date	Sample Time	製製				î.			LE THE	A. A.		
J10FJ2	OTHER SOUID	11/7/05	1200		X	X			×	X				
J10FJ3	OTHER SOUD	BH 1177los						_						
CHAIN OF POSSESSION		C:	N											
Reliaguished By/Removed From	<u> </u>	Sign/Print Received By/Ston 3 128 14 10 Received By/Ston	978 (JOS) (ate/Time	(1) Eur Nic 231	Gamma Spectros ropium-155 ; Gam ckel-63; Isotopic I 9/234, Uranium-2;	scopy (T(num Spec Plutonium 35, Urani	CL Lie - Ad : Stro	1-00 (Americi ntium-89,93 8}; Total Ura	ium-241}; Azr - Total Sr; Tec nium	ericium-241; G bnetium-99; Is	icosa Alpha & (otopic Uraniun	Gross Beta; n {Uranium-	Matrix * S-Sell SB-Sediment SO-Selid SI-Studge W + Water
Refinanciated By/Removed From	11/8/35 /23	Received By/Store	d In Da	nte/Time	(2) Cas	ICP Metals - 60) dmium, Calcium, ekel, Potassium, S	Chromiu	m, Coi	ball, Copper, 1	iron, Lead, Ma	gnesium, Man	ranese. Molvb	demm	O-Oii A+Air D8-Dnus Solida DC-Drem Liquida
Religion Syllesmoved From	Date/Time	Roceived By/State	men ultos	ite/Time — G	735									T=Time WI=Wipe L=Liquid
Relinquished By/Removed From	Date/Time	Received By/Ston		ute/Time							a.			V=Vegazion X=Other
Relinquished By/Removed From	Date/Time	Received By/Ston	ed in De	ste/Time										
LABORATORY Received By SECTION		· · · · · · · · · · · · · · · · · · ·		T	itle							D	hate/Time	*
FINAL SAMPLE Disposal Me DISPOSITION	sthod					Dispo	sed By				 		Date/Time	

Data Validation Supporting Documentation

VALIDATION LEVEL:	A	В	(c)	D	E
PROJECT: /	00-0-5019)	DATA PACKAG	E: K0090	,
VALIDATOR:	T4]	LAB: L		DATE: 1/20	106
			SDG: LUC	94	
		ANALYSES	PERFORMED		
SW-846 8260		SW-846 8260 (TCLP)	SW-846 8270		SW-846 8270 (TCLP)
SAMPLES/MAT	RIX			· · · · · · · · · · · · · · · · · · ·	
JIOFI	2 JIOF	H7 5101	FHY JINT	-89	
				adi	501,4
	•	•			
Technical verificat		oresent?	CASE NARRATIV		Yes (10) N/A
Comments.			•	· · · · · · · · · · · · · · · · · · ·	
			1411-1-2-4-		
					_
			ON (Levels D and I		
					Yes No N/A
	•				Yes No N/A
_	•				Yes No N/A
					Yes No N/A
-			***************************************		1 I
	•				Yes No N/A
Comments:			<u> </u>		

3. BLANKS (Levels B, C, D, and E)	
Calibration blanks analyzed? (Levels D, E)	Yes No (N/A
Calibration blank results acceptable? (Levels D, E)	Yes No N/A
Laboratory blanks analyzed?	
Laboratory blank results acceptable?	Yes (No N/A
Field/trip blanks analyzed? (Levels C, D, E)	Yes (No) N/A
Field/trip blank results acceptable? (Levels C, D, E)	Yes No N/A
Transcription/calculation errors? (Levels D, E)	Yes No (NA
Comments:	nofe
bis(2-estyl hexyl) phoholote - U at ROX	oll
4. ACCURACY (Levels C, D, and E)	
Surrogates/system monitoring compounds analyzed?	- 11 mg
Surrogate/system monitoring compound recoveries acceptable?	
Surrogates traceable? (Levels D, E)	Yes No(N/A
Surrogates expired? (Levels D, E)	Yes No (N/A
MS/MSD samples analyzed?	
MS/MSD results acceptable?	Yes (Nd N/A
MS/MSD standards NIST traceable? (Levels D, E)	Yes No (V/A
MS/MSD standards? (Levels D, E)	Yes No N/A
LCS/BSS samples analyzed?	Yes No N/A
LCS/BSS results acceptable?	Yes No N/A
Standards traceable? (Levels D, E)	Yes No (N/A
Standards expired? (Levels D, E)	Yes No (N/A
Transcription/calculation errors? (Levels D, E)	Yes No NA
Performance audit sample(s) analyzed?	Yes (Ng) N/A
Performance audit sample results acceptable?	Yes No 1
Comments: 45 Ideno (123-(D) pyre- Jal	no par

5. PRECISION (Levels C, D, and E)			
MS/MSD samples analyzed?	(Ye	No	N/A
MS/MSD RPD values acceptable?	Yea	No	N/A
MS/MSD standards NIST traceable? (Levels D, E)	Yes	No	N/A
MS/MSD standards expired? (Levels D, E)	Yes	No	NA
Field duplicate RPD values acceptable?	Yes	No	(V)A
Field split RPD values acceptable?	Yes	No	M)A
Transcription/calculation errors? (Levels D, E)	Yes	No	WA.
Comments:	 		
6. SYSTEM PERFORMANCE (Levels D and E)			
Internal standards analyzed?	Ves	No.	ALIA
Internal standard areas acceptable?		- 7	1
Internal standard retention times acceptable?		- 1	1
Standards traceable?		- 1	
Standards expired?		- 1	
Transcription/calculation errors?			
Comments:	1 63	J	J
- Comments.	 		
7. HOLDING TIMES (all levels)	\wedge		
Samples properly preserved?	- 171	No	N/A
Sample holding times acceptable?	Ý¢s	No	N/A
Comments:			
		_	
			
·			

8. COMPOUND IDENTIFICATION, QUANTITATION, AND DETECTION L	IMITS (all
levels)	
Compound identification acceptable? (Levels D, E)	Yes No (N/A
Compound quantitation acceptable? (Levels D, E)	Yes No NA
Results reported for all requested analyses?	Ye No N/A
Results supported in the raw data? (Levels D, E)	Yes No (N)A
Samples properly prepared? (Levels D, E)	Yes No 🕼
Laboratory properly identified and coded all TIC? (Levels D, E)	Yes No (N/A)
Detection limits meet RDL?	Yes No N/A
Transcription/calculation errors? (Levels D, E)	Yes No (N/A
Comments: all our in H7+ H8 8 our	In J2 + Hs
9. SAMPLE CLEANUP (Levels D and E)	
GPC cleanup performed?	Yes No/ N/A
GPC check performed?	Yes No N/A
GPC check recoveries acceptable?	Yes No N/A
GPC calibration performed?	Yes No N/A
GPC calibration check performed?	Yes No N/A
GPC calibration check retention times acceptable?	Yes No N/A
Check/calibration materials traceable?	Yes No N/A
Check/calibration materials Expired?	Yes No N/A
Analytical batch QC given similar cleanup?	Yes No N/A
Transcription/Calculation Errors?	Yes No N/A
Comments:	

Date:

2 February 2006

To:

Washington Closure Hanford Inc. (technical representative)

From:

Project:

Remaining Sites Confirmation Sampling - Other Solid - Waste Subsite

is 100-D-50:9

Subject: Radiochemistry - Data Package No. K0096-EB

INTRODUCTION

This memo presents the results of data validation on Data Package No. K0096 prepared by Eberline Services. (EB). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

			Wallion Tiers	
J10FJ2	11/7/05	Solid	C	See note 1
J10FH7	11/7/05	Solid	C	See note 1
J10FH8	11/7/05	Solid	C	See note 1
J10FH9	11/7/05	Solid	С	See note 1

^{1 -} Gross alpha/beta, total uranium and gamma spectroscopy.

Data validation was conducted in accordance with the Washington Closure Hanford Incorporated (WCH) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, February 2005). Appendices 1 through 6 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers

Appendix 2. Summary of Data Qualification

Appendix 3. Qualified Data Summary and Annotated Laboratory Reports

Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation

Appendix 5. Data Validation Supporting Documentation

Appendix 6. Additional Data Requested by Client

DATA QUALITY PARAMETERS

Holding Times

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for radiochemical analysis is 6 months.

All holding times were acceptable.

· Preparation (Method) Blanks

Laboratory Blanks

Blank samples are analyzed to determine if positive results are due to laboratory reagent, sample container, or detector contamination. If blank analysis results indicate the presence of an analyte above the minimum detectable activity (MDA), the following qualifiers are applied: All positive sample results less than five times the highest blank concentration are qualified as estimates and flagged "J"; sample results below the MDA are qualified as undetected and flagged "U"; sample results above the MDA and greater than five times the highest blank concentration are not qualified.

All blank results were acceptable.

Field (Equipment) Blank

No equipment blanks were submitted for analysis.

· Accuracy

Accuracy is evaluated from laboratory control sample (LCS) or blank spike sample (BSS) batch samples and spiked samples from the analytical batch. Measured activities are compared to the known added amounts. The acceptable LCS or BSS and matrix spike (MS) recovery range is 70-130%. In addition, samples may be spiked with a radiochemical tracer to assist in isolating the radioisotope of interest with the yield of the tracer being used in calculating sample activity. The acceptable range for tracer recovery is 20% to 105%. Spike sample results outside the above ranges result in associated sample results being qualified as estimates, or not qualified, depending on the activity of the individual sample. Results are rejected for LCS/BSS recoveries of less than 30% and tracer recoveries of less than 20%, and tracer recoveries of greater than 115% for detected results.

All accuracy results were acceptable.

Laboratory Duplicates

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the contract required detection limit (CRDL) and the RPD is less than 30%, no qualification is required. If

either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

and a survival of the first section of the first first section

Due to an RPD outside QC limits (55%), all thorium-228 results were qualified as estimates and flagged "J".

All other duplicate results were acceptable.

Field Duplicates

No field duplicates were submitted for analysis.

Detection Levels

Reported analytical detection levels for undetected analytes are compared against the remaining waste sites RQLs to ensure that laboratory detection levels meet the required criteria. Seventeen analytes exceeded the RQL. Under the WCH statement of work, no qualification is required.

· Completeness

Data package No. K0096 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Due to an RPD outside QC limits (55%), all thorium-228 results were qualified as estimates and flagged "J". Data flagged "J" indicates that the associated concentration is an estimate, but under the WCH statement of work, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

Seventeen analytes exceeded the RQL. Under the WCH statement of work, no qualification is required.

000003

REFERENCES

WCH, Contract #20266, *Validation Statement of Work*, Washington Closure Hanford Incorporated, July 7, 2003.

DOE/RL-96-22, Rev. 4, 100 Area Remedial Action Sampling and Analysis Plan, U.S. Department of Energy, February 2005.

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with the BHI statement of work are as follows:

- Indicates the compound or analyte was analyzed for and not detected above the minimum detectable activity (MDA) in the sample. The value reported is the sample result corrected for sample dilution and moisture content by the laboratory. The data is usable for decision making purposes.
- UJ Indicates the compound or analyte was analyzed for and not detected at concentrations above the minimum detectable activity (MDA) in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate, but is usable for decision making purposes.
- Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.
- R Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.
- UR Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

Summary of Data Qualification

RADIOCHEMISTRY DATA QUALIFICATION SUMMARY*

SBG-K0096		Projecto 1001015079	RAGE TO OFT
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Thorium-228	J	All	RPD

^{* -} The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Qualified Data Summary and Annotated Laboratory Reports

Project: WASHINGTON CL	OSUF	RE HANF	OR	D					
Laboratory: EB SDG: K0096									
Sample Number		J10FJ2		J10FH7		J10FH8		J10FH9	
Remarks									
Sample Date		11/7/05		11/7/05		11/7/05		11/7/05	
Radiochemistry	RQL	Result	Q	Result	Q	Result	Q	Result	Q
Gross Alpha		7.22		6.80		9.42		7.58	
Gross Beta		15.2		18.7		18.7		14.1	
Total uranium (ug/g)		1.06		1.46		1.66		1.04	
Potassium-40		9.54		10.0		8.27		7.79	
Cobalt 60	0.05	U	U*	U	U*	U	U*		U*
Cesium 137	0.05	0.638		2.16		3.70		U	U*
Radium-226		0.369		0.564		U	U	0.423	
Radium-228		U	υ	U	U	U	U		U
Europium 152	0.1	U	υ*	Ü	"	Ü	U*	U	U*
Europium 154	0.1	U	Ů	U	U*	U	U*	U	Ú*
Europium 155	0.1	U	ڻ	U	U*	U	U*	U,	U*
Thorium-228		0.638	J	0.399	٦	0.502	J	0.686	J
Thorium-232		U	U	U	U	U	υ	U	Ü
Uranium-235(gea)		U	حا		U	U	U	U	
Uranium-238(gea)		υ	IJ	υ	J	U	U	Ü	
Americium-241(gea)		U	Ü	U	U	U	υ	U	U

EBERLINE SERVICES/RICHMOND SAMPLE DELIVERY GROUP K0096

R511109-04

DATA SHEET

J10FJ2

j.	7772 Melissa C. Mannion	Client/Case no Contract		SDG K0096
Lab sample id Dept sample id Received % solids	7772-004 11/09/05	Client sample id Location/Matrix Collected/Weight Custody/SAF No	100-D-50:9 11/07/05 12:00 54	SOLID 1 g

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	7.22	3.5	3.7	10		93A
Gross Beta	12587-47-2	15.2	4.3	5.9	15		93B
Total Uranium (ug/g)	7440-61-1	1.06	0.12	0.019	1.0		υ_T
Potassium 40	13966-00-2	9.54	3.1	0.73			GAM
Cobalt 60	10198-40-0	Ū		0.094	0.050	ซ	GAM
Cesium 137	10045-97-3	0.638	0.099	0.10	0.10	•	GAM
Radium 226	13982-63-3	0.369	0.15	0.14	0.10		GAM
Radium 228	15262-20-1	U		0.65	0.20	U	GAM
Europium 152	14683-23-9	U		0.19	0.10	U	GAM
Europium 154	15585-10-1	U		0.25	0.10	U	GAM
Europium 155	14391-16-3	U		0.20	0.10	บ	GAM
Thorium 228	14274-82-9	0.638	0.14	0.14		1	GAM
Thorium 232	TH-232	U		0.65		ບື	GAM
Uranium 235	15117-96-1	U		0.28		υ	GAM
Uranium 238	U-238	U		9.8		U	GAM
Americium 241	14596-10-2	U		0.27		U	GAM

Remain.Sites Confirm.Samp. - O.Solid

pe 1/31/02

DATA SHEETS
Page 4
SUMMARY DATA SECTION
Page 14

EBERLINE SERVICES/RICHMOND SAMPLE DELIVERY GROUP K0096

R511109-01

DATA SHEET

J10FH7

r	7772 Melissa C. Mannion	Client/Case no Contract		SDG_K0096
Lab sample id Dept sample id Received % solids	7772-001 11/09/05	Client sample id Location/Matrix Collected/Weight Custody/SAF No	100-D-50:9 11/07/05 08:20	SOLID 370 g RC-030

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	6.80	3.8	3.5	10		93A
Gross Beta	12587-47-2	18.7	4.3	5.6	15		93B
Total Uranium (ug/g)	7440-61-1	1.46	0.17	0.019	1.0		UT
Potassium 40	13966-00-2	10.0	4.4	1.2			GAM
Cobalt 60	10198-40-0	. U		0.21	0.050	IJ	GAM
Cesium 137	10045-97-3	2.16	0.19	0.15	0.10	_	GAM
Radium 226	13982-63-3	0.564	0.22	0.20	0.10		GAM
Radium 228	15262-20-1	ซ		0.64	0.20	U	GAM
Europium 152	14683-23-9	υ		0.28	0.10	บ	GAM
Europium 154	15585-10-1	U		0.36	0.10	ט	GAM
Europium 155	14391-16-3	Ū		0.27	0.10	U	GAM
Thorium 228	14274-82-9	0.399	0.11	0.13		- T	GAM
Thorium 232	TH-232	υ		0.64		U T	GAM
Uranium 235	15117-96-1	U		0.39		Ū	GAM
Uranium 238	U-238	Ŭ		13		IJ	GAM
Americium 241	14596-10-2	. ប		0.41		Ü	GAM

Remain.Sites Confirm.Samp. - O.Solid

W 1/31/06

DATA SHEETS
Page 1
SUMMARY DATA SECTION
Page 11

EBERLINE SERVICES / RICHMOND SAMPLE DELIVERY GROUP K0096

R511109-02

DATA SHEET

J10FH8

	7772 Melissa C. Mannion	Client/Case no Contract		SDG_K0096
Lab sample id Dept sample id Received % solids	7772-002 11/09/05	Client sample id Location/Matrix Collected/Weight Custody/SAF No	100-D-50:9 11/07/05 08:20 39	SOLID 04 g

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	9.42	3.6	3.3	10		93A
Gross Beta	12587-47-2	18.7	4.2	5.6	15		93B
Total Uranium (ug/g)	7440-61-1	1.66	0.17	0.019	1.0		UТ
Potassium 40	13966-00-2	8.27	1.7	1.2			GAM
Cobalt 60	10198-40-0	ซ		0.17	0.050	บ	GAM
Cesium 137	10045-97-3	3.70	0.26	0.12	0.10		GAM
Radium 226	13982-63-3	Ü		0.82	0.10	U	GAM
Radium 228	15262-20-1	ָ ט		0.96	0.20	ប	GAM
Europium 152	14683-23-9	Ū		0.43	0.10	Ü	GAM
Europium 154	15585-10-1	ប		0.49	0.10	ប	GAM
Europium 155	14391-16-3	บ		0.27	0.10	υ	GAM
Thorium 228	14274-82-9	0.502	0.19	0.20		T	GAM
Thorium 232	TH-232	Ū		0.96		ບື່	GAM
Uranium 235	15117-96-1	บ		0.48		ប	GAM
Uranium 238	U-238	U		17		U	GAM
Americium 241	14596-10-2	υ		0.26		U	GAM

Remain.Sites Confirm.Samp. - O.Solid

W/31/06

DATA SHEETS
Page 2
SUMMARY DATA SECTION
Page 12

EBERLINE SERVICES/RICHMOND SAMPLE DELIVERY GROUP K0096

R511109-03

DATA SHEET

J10FH9

1	7772 Melissa C. Mannion	Client/Case no Contract		SDG_K0096
Lab sample id Dept sample id Received % solids	7772-003 11/09/05	Client sample id Location/Matrix Collected/Weight Custody/SAF No	100-D-50:9 11/07/05 09:30 58	SOLID 39 q

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	7.58	3.5	3.6	10		93A
Gross Beta	12587-47-2	14.1	4.0	5.5	15		93B
Total Uranium (ug/g)	7440-61-1	1.04	0.12	0.019	1.0		$\mathbf{U}_{-}\mathbf{T}$
Potassium 40	13966-00-2	7.79	1.7	0.89			GAM
Cobalt 60	10198-40-0	Ū		0.096	0.050	U	GAM
Cesium 137	10045-97-3	U		0.089	0.10	บ	GAM
Radium 226	13982-63-3	0.423	0.15	0.16	0.10		GAM
Radium 228	15262-20-1	U		0.49	0.20	Ū	GAM
Europium 152	14683-23-9	U		0.24	0.10	บ	GAM
Europium 154	15585-10-1	U		0.32	0.10	U .	GAM
Europium 155	14391-16-3	ט		0.16	0.10	Ū	GAM
Thorium 228	14274-82-9	0.686	0.13	0.11		J	GAM
Thorium 232	TH-232	U		0.49		U	GAM
Uranium 235	15117-96-1	Ü		0.28		U	GAM
Uranium 238	U-238	Ū		12		ט	GAM
Americium 241	14596-10-2	U		0.095		บ	GAM

Remain.Sites Confirm.Samp. - O.Solid

1/31/06

DATA SHEETS
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SUMMARY DATA SECTION
Page 13

Laboratory Narrative and Chain-of-Custody Documentation

Case Narrative

Page 1 of 1

1.0 **GENERAL**

Washington Closure Hanford (WCH) Sample Delivery Group K0096 was composed of four other solid samples designated under SAF No. RC-030 with a Project Designation of: Remaining Sites Confirmation Sampling - Other Solid. The Sampling Location was 100-D50:9.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to WCH via e-mail on November 30, 2005.

2.0 **ANALYSIS NOTES**

2.1 **Gross Alpha and Gross Beta Analysis**

No problems were encountered during the course of the analyses.

2.2 **Total Uranium Analysis**

No problems were encountered during the course of the analyses.

2.3 Gamma Spectroscopy

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Melissa C. Mannion

Senior Program Manager

/2/02/05 Date

Washington Closur	e Hanford	CI	HAIN OF CUST	CODY/S	AMPL	E ANALY	YSIS	REQUES'	Γ	R	C-030-026	Page 1	of <u>2</u>
Collector STANKOVICH/HUDSON		Compa	inv Contact e Stankovich	Telepho 531-7	ne No.			Project Coord KESSNER, JH		Price Code	9C	Data Tu	rnaround
Project Designation Remaining Sites Confirmation	n Sampling - Other Solid	Samol 100	Sampling Location KOO		0096 (7772)			SAF No. RC-030		Air Quality 🗌		15 Days	
Ice Chest No. AFS-	04-057	l l	Logbook No. 1578		COA C10DR1	6700	·	Method of Shir FedEx	ment	-	···	-	
SHIPPED TO EBERLINE SERVICES / LIC		Offsite	Property No.	Aot	008	8		Bill of Lading	Air Bill	No. 5-	er 08P	'C	
POSSIBLE SAMPLE HAZA	RDS/REMARKS						· · · · · ·	<u> </u>	Γ				
Non Rad			Preservation	None	M	Cool 4C	Cool 4	IC Cool 4C	Coal 4	c			<u> </u>
Special Handling and/or S	Storage		Type of Container	G/P	G/P	aG	G	aG	G				
None			No. of Container(s)	1	1	'	1		1				
			Volume	500mL	120mL	60mL		L 60mL	250m	L			
₹ 20000 17	SAMPLE ANAL	YSIS		Sec item (1) in Special Instructions.	See item (2) Special Instructions	Pesticides -	VOA - 82 (TCL		TFH (Tot 418.1				
Sample No.	Matrix *	Sample Date	Sample Time		de la very		Ser.						1000040
J10FH7	OTHER SOLID	11/7/05	0810	X									
J10FH8	OTHER SOLID	1/2/05		×	 				<u> </u>				
J10FH9	OTHER SOLID	11/7/03	6930	X									
J40FJ0	OTHER SOLID	MA)	-	1									
J10EJ1	OTHER SOLID	11/07/05		1								·	
CHAIN OF POSSESSIO		Sign/Print	Names	<u> </u>	SPE	CIAL INSTR	UCTIO	NS	·	- , l		کمام	Matrix *
Relinquished By/Removed From	Date/Time /33C		1	ate/Time	m	Gamma Spectros	сору (ТС	CL List) (Cesium-1:	37. Cobalt-	-60. Europium-		1/2/02	S-Soil
Relinquished By/Removed From	Date/Time			/ 33	Eur	opium-155]; 🛑		Strootium 90 00			Gross Alpha & G		SE=Sediment SO=Solid
1 = ' '	11/8/05 1000	Received By/Stor	12/05		739		Tempo-	lotāl Ura	nium)				SI=Sindge W = Water
Relinguished By/Removed From	Date/Time	Received By/Stor	V	ate/Time	(2) Cad	lmium, Calcium, (Chromiun	846) (Aluminum, / n, Cobalt, Copper, Silicon, Silver, Sod	ron, Lead,	Magnesium, M	langanese, Molybd	enum.	O≃Oil A=Air DS+Drum Solids DL=Drum Liquids
Relinquished By/Removed From	Date/Time	Received By/Stor	. D.	105 9	 1		·		·	,,		,	ToTissue Wt=Wipe L=Liquid
Relinquished By/Removed From	Date/Time	Received By/Stor		ate/Time									V=Vegetation X=Other
Retinquished By/Removed From	Date/Time	Received By/Ston	ed In Da	ite/Time									
LABORATORY Received By SECTION	· · · · · · · · · · · · · · · · · · ·			Tit	le						Da	te/Time	
FINAL SAMPLE Disposal Me DISPOSITION	ethod					Dispos	ed By				D	ate/Time	·

Washington Closure Hanford	CI	HAIN OF CUST	ODY/S	AMPI	LE ANA	LYSIS	RE	QUEST	r	R	C-030-026	Page 2	of <u>2</u>
Collector STANKOVICH/HUDSON	_					iect Coordi SSNER, JH	nator	Price Code	9C		rnaround		
Project Designation Remaining Sites Confirmation Sampling - Other Solid		16 13 (1973 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					F No. -030		Air Quali	ty 📋	15	Days	
Ice Chest No. ERC -01-037		Logbook No. 1578		COA C10DR	16700			thod of Shir edEx	ment				
Shipped To EBERLINE SERVICES/ LIONVILLE	Offsite	Property No.	0600	89			Bill	of Lading	/Air Bill l	No. 5	ee o	spc_	:
POSSIBLE SAMPLE HAZARDS/REMARKS					7	7		V	7	7			ļ , ·
Non Rad		Preservation	None	None	Cool 40	Cool	4C	Cool 4C	Cool 40	:/			
Special Handling and/or Storage		Type of Container	G/P	G/P	/ aG	/ -		aG	G				
Cool 4°C		No. of Container(s) Volume	500mL	1200	14 mg	. 60r	/ V /⊏	604I	250hi			-	
 		Volume	Sec item (1) in	See item (2) in PCBs #80	82; VOA	F760A	Sem-VOA -	TPH/Tot	- D -			ļ
SAMPLE ANALYSI	s		Special Instructions.	Special Instruction	Pestificie	s- dro oro- s-	L)	8270A (TCL)	118.1		:		
					<u> </u>	/_			/				
Sample No. Matrix *	Sample Date	Sample Time	. تعديد. بيد. الأساد										
J10FJ2 OTHER SOLID	17/08	1200	<u> </u>	ļ				<u> </u>					<u> </u>
J10FJ3 OTHER SOLID	11/7/05			ļ	_				<u> </u>			<u> </u>	<u> </u>
	·		<u> </u>	ļ				ļ <u> </u>	ļ. <u></u> .			 -	<u> </u>
				-					<u> </u>			<u> </u>	<u> </u>
CHAIN OF POSSESSION	Sign/Prin	t Names	<u> </u>	l er	ECIAL INS	TDUCT	ONS	<u> </u>	<u>L</u> ,		<u></u>	<u> </u>	Matrix *
Relinquished By/Removed From Date/Time F	Received By/Stor	ed In Da	nte/Time		*			ot) (Casium 1	27 Cobale	60 Europium I	52, Europium-15	:4	S=Soil
BLLINDSON BLUM 11768	3728BC		1700 ate/Time	E	uropium-155};	Gamma Spe	ec - Ad	ld on (Americ	iun 241);	Americium 241	; Gross Alpha &	Gross Beta;	SE-Sediment SO-Solid
Relinquished By/Removed From Date/Time 3728 Pef 2 B 11 8 25 (23)	Received By/Stor	00.111	US 12	30 2	33/234 , Urani s	235, Ura		38), Total Un	mium		·Isotopie Urania	•	SI-Studge W = Water O-Oil
	Received By/Stor	7/	ite/Time	- (2 C	admiwn, Calci	uzn, Chromin	um, Co	balt, Copper,	Iron, Lead,	Magnesium, M	n, Berylliwn, Bor Ianganese, Molyl ercury - 7471 - (C	odenum.	A=Air DS=Drum Solids DL=Drum Liquids
	Received By Stor	red in	ate/T me	:30							• •		T=Tissue W!=Wipe L=Liquid
	Received By Stor		ate/Time		-								V=Vegetation X=Other
Relinquished By/Removed From Date/Time F	Received By/Stor	red In Dr	ate/Tinve							·	·		
LABORATORY Received By SECTION			Ti	tle								Date/Time	
FINAL SAMPLE Disposal Method DISPOSITION				<u> </u>	D	isposed By						Date/Time	

Data Validation Supporting Documentation

APPENDIX A RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	В	(c)	D	E
	0-0-50:9	<u></u>	DATA PACKA	GE: KOO	2/
VALIDATOR:	TLT	LAB:		DATE:	Trofor
			SDG:	K0076	
Gross Alpha/Beta	Strontium-90	ANALYSES Technetium-99	S PERFORMED Alpha Spectroscopy	Gamma Spectroscopy	1
Total Uranium	Radium-22	Tritium			
SAMPLES/MAT					
310414	7 J/OFH 8	710 fH7	J10475	<u> </u>	
		· · · · · · · · · · · · · · · · · · ·			
					·
				.	Solal
1. Completenes	S	***************************************	•••••		🗖 N/A
Technical verifi	cation forms p	resent?		Y0	NI/A
			***************************************	······	S NO IVA
Comments:			4/-		
			; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;		· · · · · · · · · · · · · · · · · · ·
					· · · · · · · · · · · · · · · · · · ·
		•			
· - ····			·		
			· · · · · · · · · · · · · · · · · · ·		
2. Initial Calibra	ation (Levels I	o, E)	*********************	*************************	X N/A
					1
Instruments/dete	ectors calibrate	d?		• • • • • • • • • • • • • • • • • • • •	Yes No N/A
Initial calibration	n acceptable?			•••••	Yes No N/A
Standards NIST	traceable?		*************************	**	Yes No N/A
Standards Expire	ed?	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	*******************		Yes No N/A
Calculation chec	k acceptable?	•••••	************		Yes No N/A
Comments:			·		-
					<u> </u>

3. Continuing Calibration (Levels D, E)	Je	N/A
Calibration checked within required frequency?Yes	No	N/A
Calibration check acceptable?Yes	No	N/A
Calibration check standards traceable?Yes	No	N/A
Calibration check standards expired?	No	N/A
Calculation check acceptable?Yes	No	N/A
Comments:		
		· · · · · · · · · · · · · · · · · · ·
4. Background Counts (Levels D, E)	j	ÀV/A
Background Counts checked within required frequency?Yes	No	N/A
Background Counts acceptable?	No	N/A
Calculation check acceptable?	No	N/A
Comments:		

5. Blanks (Levels B, C, D, E)	□ N/A
Method blank analyzed within required frequency?	
Method blank results acceptable?	
Analytes detected in method blank?	Yes N/A
Field blank(s) analyzed?	
Field blank results acceptable?	
Analytes detected in field blank(s)?	Yes No (V/A)
Transcription/Calculation Errors? (Levels D, E)	Yes No (Ñ/)A
Comments:	no FB
	·
·	
6. Laboratory Control Samples or Blank Spike Samples (Level	s C, D, E) 🗆 N/A
LCS /BSS analyzed within required frequency?	(Yes) No N/A
LCS/BSS recoveries acceptable?	Ye No N/A
LCS/BSS traceable? (Levels D,E)	Yes No 🕢
LCS/BSS expired? (Levels D,E)	
LCS/BSS levels correct? (Levels D,E)	Yes No N/A
Transcription/Calculation Errors? (Levels D, E)	Yes No (N/A)
Comments:	
	\ \
7. Chemical Carrier Recovery (Levels C, D, E)	
Chemical carrier added?	Yes No N/A
Chemical recovery acceptable?	
Chemical carrier traceable? (Levels D, E)	·

Chemical carrier expired? (Levels D, E)	Yes No N/A
Transcription/Calculation errors? (Levels D, E)	Yes No N/A
Comments:	
	·
	SANIA
8. Tracer Recovery (Levels C, D, E)	N/A
Tracer added?	Yes No N/A
Tracer recovery acceptable?	Yes No N/A
Tracer traceable? (Levels D, E)	Yes No N/A
Tracer expired? (Levels D, E)	Yes No N/A
Transcription/Calculation errors? (Levels D, E)	Yes No N/A
Comments:	
9. Matrix Spikes (Levels C, D, E)	
Matrix spike analyzed?	Yes No N/A
Spike recoveries acceptable?	
Spike source traceable? (Levels D, E)	
Spike source expired? Levels D, E)	
Transcription/Calculation Errors? (Levels D, E)	
Comments:	

10. Duplicates (Levels C, D, E)	□ N/A
Duplicates Analyzed at required frequency?	Yes No N/A
RPD Values Acceptable?	(/
Transcription/Calculation Errors? (Levels D, E) Comments:	U (55%)
,	
11. Field QC Samples (Levels C, D E)	□ N/A
Field duplicate sample(s) analyzed?	Yes (No) N/A
Field duplicate RPD values acceptable?	Yes No 10/A
Field split sample(s) analyzed?	
Field split RPD values acceptable?	Yes No (N/A
Performance audit sample(s) analyzed?	
Performance audit sample results acceptable?	Yes No WA
Comments:	no field 9(
	·
12. Holding Times (All levels)	\wedge
Are sample holding times acceptable?	(Yes) No N/A
Comments:	
	<u> </u>

13. Results and Detection Limits (All Levels)	🗆 N/A
Results reported for all required sample analyses?	Yes No N/A
Results Acceptable? (Levels D, E)	Yes No (N/A)
Transcription/Calculation errors? (Levels D, E)	
MDA's meet required detection limits?	Yes 🔞 N/A
Transcription/calculation errors? (Levels D, E) Comments:	Yes No NA
Comments:	17 our

Additional Documentation Requested by Client

EBERLINE SERVICES/RICHMOND SAMPLE DELIVERY GROUP K0096

R511109-06

METHOD BLANK

Method Blank

	7772 Melissa C. Mannion	Client/Case no Contract	SDG_K0096
Lab sample id Dept sample id		Client sample id Material/Matrix SAF No	 SOLID

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	-1.28	1.4	4.0	10	ט.	93A
Gross Beta	12587-47-2	-0.503	3.7	6.4	15	ט	93B
Total Uranium (ug/g)	7440-61-1	0	0.008	0.019	1.0	U	U_T
Potassium 40	13966-00-2	ט	•	0.90		U .	GAM
Cobalt 60	10198-40-0	υ		0.10	0.050	U	GAM
Cesium 137	10045-97-3	U	•	0.085	0.10	ָ <u>.</u>	GAM
Radium 226	13982-63-3	U		0.16	0.10	υ	GAM
Radium 228	15262-20-1	Ü		0.32	0.20	บ	GAM
Europium 152	14683-23-9	ប		0.20	0.10	บ	GAM
Europium 154	15585-10-1	U		0.28	0.10	ซ	GAM
Europium 155	14391-16-3	υ		0.12	0.10	U	GAM
Thorium 228	14274-82-9	υ		0.10	•	U	GAM
Thorium 232	TH-232	U		0.32		U	GAM
Uranium 235	15117-96-1	U		0.22		บ	GAM
Uranium 238	U-238	U		11	•	U	GAM
Americium 241	14596-10-2	Ü	•	0.079		ט	GAM
					the second second		

Remain.Sites Confirm.Samp. - O.Solid

QC-BLANK #55093

METHOD BLANKS
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Page 8

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 11/30/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0096

R511109-05

LAB CONTROL SAMPLE

Lab Control Sample

SDG 7772 Contact Melissa C. Mannion	Client/Case no <u>Hanford</u> Contract <u>No. 630</u>	SDG K0096
Lab sample id <u>R511109-05</u> Dept sample id <u>7772-005</u>	Client sample id <u>Lab Control Sample</u> Material/Matrix SAF No RC-030	SOLID

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pC1/g	QUALI- FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC	3 IMTS	PROTOCOL LIMITS
Gross Alpha	265	20	3.4	10		93A	230 .	9.2	115	63-137	70-130
Gross Beta	230	11	5.4	15		93B	218	8.7	106	74-126	70-130
Total Uranium (ug/g)	36.2	4.3	0.19	1.0		U_T	36.2	1.4	100	77-123	80-120
Cobalt 60	3.68	0.32	0.18	0.050		GAM	3.43	0.14	107	71-129	80-120
Cesium 137	3.94	0.29	0.18	0.10		GAM	3.51	0.14	112	71-129	80-120

Remain.Sites Confirm.Samp. - O.Solid

QC-LCS #55092	

LAB CONTROL SAMPLES
Page 1
SUMMARY DATA SECTION
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Lab id EBRLNE

Protocol <u>Hanford</u>

Version Ver 1.0

Form DVD-LCS

Version <u>3.06</u>
Report date <u>11/30/05</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0096

R511109-07

DUPLICATE

J10FH7

SDG 7772 Contact <u>Melissa C. Mannion</u>		Client/Case no <u>Hanford</u> <u>SDG K0096</u> Contract <u>No. 630</u>
DUPLICATE	ORIGINAL	· · · · · · · · · · · · · · · · · · ·
Lab sample id <u>R511109-07</u>	Lab sample id R511109-01	Client sample id J10FH7
Dept sample id <u>7772-007</u>	Dept sample id 7772-001	Location/Matrix 100-D-50:9 SOLID
	Received <u>11/09/05</u>	Collected/Weight <u>11/07/05 08:20 370 q</u>
t solids <u>100.0</u>	* solids 100.0	Custody/SAF No RC-030-026 RC-030

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI- FIERS	RPD	3σ TOT	· DER
Gross Alpha	6.45	3.2	3.1	10	•	93A	6.80	3.8	3.5		5	120	0.1
Gross Beta	14.8	4.0	5.3	15		93B	18.7	4.3	5.6		23	62	
Total Uranium (ug/g)	1.42	0.16	0.019	1.0		U_T	1.46	0.17	0.019		3	31	
Potassium 40	11.0	2.0	1.3			GAM	10.0	4.4	1.2		10	76	
Cobalt 60	ט		0.15	0.050	ט	GAM	ט		0.21	U -	-	-	0.5
Cesium 137	2.28	0.25	0.16	0.10		GAM	2.16	0.19	0.15		·. 5	38	0.4
Radium 226	0.501	0.23	0.23	0.10		GAM	0.564	0.22	0.20		12	95	0.4
Radium 228	σ		0.69	0.20	U	GAM	ប		0.64	υ .	_		0.1
Europium 152	ŭ		0.43	0.10	ט	GAM	ט		0.28	ŭ	_		0.6
Europium 154	U		0.45	0.10	ט	GAM	υ		0.36	U	_		0.3
Europium 155	υ		0.27	0.10	Ū	GAM	U		0.27	U	-		0
Thorium 228	0.702	0.19	0.18			GAM	0.399	0.11	0.13		55	68	2.4
Thorium 232	٠ ت		0.69		· ʊ	GAM	י ס		0.64	ט	_		0.1
Uranium 235	υ		0.42		Ü	GAM	U		0.39	ט			0.1
Uranium 238	σ		18		ប	GAM	ט		13	Ū	-		0.4
Americium 241	υ	,	0.24		U	GAM	Ù		0.41	Ū			0.7

Remain.Sites Confirm.Samp. - O.Solid

QC-DUP#1 55094

DUPLICATES
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SUMMARY DATA SECTION
Page 10

Lab id EBRLNE
Protocol Hanford

Version Ver 1.0

Form DVD-DUP Version 3.06

Report date <u>11/30/05</u>

Date:

2 February 2006

To:

Washington Closure Hanford Inc. (technical representative)

From:

Project:

Remaining Sites Confirmation Sampling - Other Solid - Waste Subsite

is 100-D-50:9

Subject: PCB/Pesticide/Herbicide - Data Package No. K0096-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K0096 prepared by Lionville Laboratory Inc. (LLI). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

	MSappine Dates.		re#Valldaniosi'	in Take !
J10FJ2	11/7/05	Solid	С	See note 1
J10FH7	11/7/05	Solid	С	See note 1
J10FH8	11/7/05	Solid	С	See note 1
J10FH9	11/7/05	Solid	С	See note 1

^{1 -} PCBs by 8082, pesticides by 8081A and chlorinated herbicides by 8151A.

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, February 2005). Appendices 1 through 5 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers

Appendix 2. Summary of Data Qualification

Appendix 3. Qualified Data Summary and Annotated Laboratory Reports Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation

Appendix 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

Holding Times

Sample data were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be extracted within 14 days of the date of sample collection and analyzed within 40 days from the date of extraction.

If holding times are exceeded by less than two times the limit, all associated sample results are qualified as estimates and flagged "J" for detects and "UJ" for nondetects. If holding times are exceeded by greater than two times the limit, all

associated detected sample results are qualified as estimates and flagged "J" and all non-detects are rejected and flagged "UR".

All holding times were acceptable.

Method Blank

Method blank analyses are performed to determine the extent of laboratory contamination introduced through sampling, sample preparation or analysis. At least one method blank analysis must be conducted for every 20 samples. Method blanks should not contain target compounds at a concentration greater than required quantitation limit (RQL). If target compounds are present, sample results less than five times the blank concentration are qualified as undetected and flagged "U". If the sample result is less than five times the blank concentration and less than RQL, the result is qualified as undetected and elevated to the RQL.

All method blank results were acceptable.

Field Blanks

No field blanks were submitted for analysis.

Accuracy

Matrix Spike & Laboratory Control Sample

Matrix spike (MS) and laboratory control sample (LCS) analyses are used to assess the analytical accuracy of the reported data. The matrix spike is used to assess the effect of the matrix on the ability to accurately quantify sample concentrations. Recoveries must fall within the range of 70% to 130%. If spike recoveries are outside control limits, detected sample results less than five times the spike concentration are qualified as estimates and flagged "J". Non-detected sample results with spike recoveries outside control limits are qualified as estimates and flagged "UJ". Sample results greater than five times the spike concentration require no qualification.

Due to a matrix spike outside QC limits (127%), all detected 4,4'-DDE results were qualified as estimates and flagged "J".

Due to a matrix spike outside QC limits (129%), all detected endosulfan II results were qualified as estimates and flagged "J".

Due to the lack of a matrix spike, matrix spike duplicate and LCS analysis, all toxaphene results were qualified as estimates and flagged "J".

All other accuracy results were acceptable.

Surrogate Recovery

The analysis of surrogate compounds provides a measure of performance for individual samples. Matrix-specific surrogate compound recovery control windows have been established by the laboratory. When a surrogate compound recovery is outside the control window, all positively identified target compounds associated with the unacceptable surrogate recoveries are qualified as estimates and flagged "J". Non-detected compounds with surrogate recoveries less than the lower control limit are qualified as having an estimated detection limit and flagged "UJ". Non-detected compounds with surrogate recoveries above the upper control limit require no qualification.

All surrogate results were acceptable.

· Precision

Matrix Spike/Matrix Spike Duplicate Samples

Matrix spike/matrix spike duplicate results provide matrix-specific information on the precision of the method for specific target compound classes. Precision is expressed as the relative percent difference (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample. For soil samples, results must be within RPD limits of plus/minus 30%. If RPD values are out of specification and the sample concentration is less than five times the spike concentration, all associated detected sample results are qualified as estimates and flagged "J". If RPD values are out of specification and the sample concentration is greater than five times the spike concentration, no qualification is required.

Due to the lack of a matrix spike and matrix spike duplicate analysis, all toxaphene results were qualified as estimates and flagged "J".

All other precision results were acceptable.

Field Duplicate Samples

No field duplicates were submitted for analysis.

· Analytical Detection Levels

Reported analytical detection levels are compared against the Remaining Waste Sites RQLs to ensure that laboratory detection levels meet the required criteria. Dalpon, dichloroprop and 2,4-DB exceeded the RQL. Under the WCH statement of work, no qualification is required. All other analytes met the RQL.

· Completeness

Data Package No. K0096 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Due to a matrix spike outside QC limits (127%), all detected 4,4'-DDE results were qualified as estimates and flagged "J". Due to a matrix spike outside QC limits (129%), all detected endosulfan II results were qualified as estimates and flagged "J". Due to the lack of a matrix spike, matrix spike duplicate and LCS analysis, all toxaphene results were qualified as estimates and flagged "J". Data flagged "J" indicates that the associated concentration is an estimate, but under the BHI statement of work, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

REFERENCES

WCH, Contract #20266, Validation Statement of Work, Washington Closure Hanford Incorporated, July 7, 2003.

DOE/RL-96-22, Rev. 4, 100 Area Remedial Action Sampling and Analysis Plan, U.S. Department of Energy, February 2005.

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with the procedures herein are as follows:

- Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.
- UJ Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.
- Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.
- R Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.
- UR Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.
- NJ Indicates presumptive evidence of a compound at an estimated value.

 The data may not be valid for some specific applications (i.e., usable for decision-making purposes).
- Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

Summary of Data Qualification

PESTICIDE/PCB/HERBICIDE DATA QUALIFICATION SUMMARY*

SDC: ROOSE:	N. 6. G. C.	Rigidati 10010 50.9	PAGE 1 OF 1
COMMENTS:		·	
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
4,4'-DDE	J	J10FJ2, J10FH7 J10FH8	MS recovery
Endosulfan II	J	J10FH7,J10FH8	MS recovery
Toxaphene	J	All	No MS, MSD or LCS analysis

^{* -} The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Qualified Data Summary and Annotated Laboratory Reports

Project: WASHINGTON CL)								
Laboratory: LLI	SDG: K			,					
Sample Number	1000	J10FJ2		J10FH7		J10FH8		J10FH9	
Remarks		0.0.02		3,3,					
Sample Date		11/7/05		11/7/05		11/7/05		11/7/05	
Extraction Date		11/11/05		11/11/05		11/11/05		11/11/05	
Analysis Date		11/16/05		11/11/05		11/16/05	-	11/11/05	
PCB	RQL	Result	Q	Result	Q	Result	Q	Result	Q
Aroclor-1016	100	36	_	41	U	38		35	
Aroclor-1221	100	36	_	41		38		35	
Aroclor-1232	100	36	_	41	Ü	38		35	
Aroclor-1242	100	36		41	u u	38	_	35	
Aroclor-1248	100	36	_	41	Ü	38	_	35	
Arocior-1254	100	36		41		38		35	
Aroclor-1260	100	25	۳	290	-	200	-	35	-
ATOCIOI-1200	100	23		230	-	200	_	 	
	 		 		\vdash	 	_	<u> </u>	
Sample Number	_	J10FJ2	L	J10FH7	L	J10FH8	L	J10FH9	ـــــ
Remarks		010102		0101717		010: 110		0.01.10	
Sample Date		11/7/05		11/7/05		11/7/05		11/7/05	
Extraction Date		11/11/05			11/11/05		11/11/05		
Analysis Date		 		11/15/05		11/15/05		11/15/05	
		11/15/05						Result Q	
Pesticide	ROL	Result	O	Result	lo .	Result	O	Result	Q
Pesticide Alpha-BHC	RQL 5	Result	Q U	Result 4.1	Q U	Result 3.8	Q D		
Alpha-BHC	5	1.4	U	4.1	U	3.8 3.8	U	1.4	U
Alpha-BHC Gamma-BHC (Lindane)	5	1.4 1.4	υ	4.1 4.1	U	3.8	ט		U
Alpha-BHC Gamma-BHC (Lindane) Beta-BHC	5 5 5	1.4 1.4 1.4	υ υ υ	4.1 4.1 4.1	υ υ υ	3.8 3.8	U U	1.4 1.4	υ υ υ
Alpha-BHC Gamma-BHC (Lindane) Beta-BHC Heptachlor	5	1.4 1.4 1.4 1.4	υ υ υ	4.1 4.1	บ บ บ	3.8 3.8 3.8	ב כ כ	1,4 1,4 1,4	U U U
Alpha-BHC Gamma-BHC (Lindane) Beta-BHC	5 5 5	1.4 1.4 1.4 1.4	υ υ υ	4.1 4.1 4.1 4.1	บ บ บ บ	3.8 3.8 3.8 3.8	כככ	1.4 1.4 1.4 1.4	U U U U
Alpha-BHC Gamma-BHC (Lindane) Beta-BHC Heptachlor Delta-BHC Aldrin	5 5 5 5	1.4 1.4 1.4 1.4	υ υ υ	4.1 4.1 4.1 4.1 4.1	U U U U U	3.8 3.8 3.8 3.8 3.8	ט ט ט ט	1.4 1.4 1.4 1.4	U U U U U
Alpha-BHC Gamma-BHC (Lindane) Beta-BHC Heptachlor Delta-BHC	5 5 5 5 5	1.4 1.4 1.4 1.4 1.4	U U U U U U	4.1 4.1 4.1 4.1 4.1 4.1	U U U U U	3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8	U U U U U U	1.4 1.4 1.4 1.4 1.4	U U U U U U
Alpha-BHC Gamma-BHC (Lindane) Beta-BHC Heptachlor Delta-BHC Aldrin Heptachlor Epoxide	5 5 5 5 5 5 5 5 5	1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4	U U U U U U U U	4.1 4.1 4.1 4.1 4.1 4.1 4.1 4.1 4.1	บ บ บ บ บ บ บ	3.8 3.8 3.8 3.8 3.8 3.8 3.8	U U U U U U	1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4	U U U U U U U U U
Alpha-BHC Gamma-BHC (Lindane) Beta-BHC Heptachlor Delta-BHC Aldrin Heptachlor Epoxide gamma-Chlordane	5 5 5 5 5 5 5	1.4 1.4 1.4 1.4 1.4 1.4 1.4	U U U U U U U U	4.1 4.1 4.1 4.1 4.1 4.1 4.1	บ บ บ บ บ บ บ	3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8	U U U U U U U	1.4 1.4 1.4 1.4 1.4 1.4 1.4	U U U U U U U U U
Alpha-BHC Gamma-BHC (Lindane) Beta-BHC Heptachlor Delta-BHC Aldrin Heptachlor Epoxide gamma-Chlordane Endosulfan I	5 5 5 5 5 5 5 5 5	1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4	U U U U U U U U	4.1 4.1 4.1 4.1 4.1 4.1 4.1 4.1 4.1	บ บ บ บ บ บ บ	3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8	U U U U U U U	1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4	0 0 0 0 0 0 0 0 0
Alpha-BHC Gamma-BHC (Lindane) Beta-BHC Heptachlor Delta-BHC Aldrin Heptachlor Epoxide gamma-Chlordane Endosulfan I alpha-Chlordane	5 5 5 5 5 5 5 5 5 5 5	1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4	7 0 0 0 0 0 0	4.1 4.1 4.1 4.1 4.1 4.1 4.1 4.1 4.1	บ บ บ บ บ บ บ	3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8	U U U U U U U	1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4	0 0 0 0 0 0 0 0 0
Alpha-BHC Gamma-BHC (Lindane) Beta-BHC Heptachlor Delta-BHC Aldrin Heptachlor Epoxide gamma-Chlordane Endosulfan I alpha-Chlordane 4,4'-DDE	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4	0 0 0 0 0 0 0 0	4.1 4.1 4.1 4.1 4.1 4.1 4.1 4.1 6.6	n n n n n n	3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 6.5	U U U U U U U	1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4	U U U U U U U U U U U U U U U U U U U
Alpha-BHC Gamma-BHC (Lindane) Beta-BHC Heptachlor Delta-BHC Aldrin Heptachlor Epoxide gamma-Chlordane Endosulfan I alpha-Chlordane 4,4'-DDE Dieldrin	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4	0 0 0 0 0 0 0 0	4.1 4.1 4.1 4.1 4.1 4.1 4.1 4.1 6.6	n n n n n n	3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8	ט ט ט ט ט ט ט ט	1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4	
Alpha-BHC Gamma-BHC (Lindane) Beta-BHC Heptachlor Delta-BHC Aldrin Heptachlor Epoxide gamma-Chlordane Endosulfan I alpha-Chlordane 4,4'-DDE Dieldrin Endrin	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4	0 0 0 0 0 0 0 0	4.1 4.1 4.1 4.1 4.1 4.1 4.1 4.1 6.6 3.7 4.1 4.1 7.6	7 0 1 1 0 0 0 0	3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8	ט ט ט ט ט ט ט ט ט ט ט ט ט ט ט ט ט ט ט	1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4	
Alpha-BHC Gamma-BHC (Lindane) Beta-BHC Heptachlor Delta-BHC Aldrin Heptachlor Epoxide gamma-Chlordane Endosulfan I alpha-Chlordane 4,4'-DDE Dieldrin Endrin 4,4'-DDD	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4	0 0 0 0 0 0 0 0	4.1 4.1 4.1 4.1 4.1 4.1 4.1 4.1 6.6 3.7 4.1 4.1	7 0 1 1 0 0 0 0	3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 5.6 3.8 3.8		1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4	
Alpha-BHC Gamma-BHC (Lindane) Beta-BHC Heptachlor Delta-BHC Aldrin Heptachlor Epoxide gamma-Chlordane Endosulfan I alpha-Chlordane 4,4'-DDE Dieldrin Endrin 4,4'-DDD Endosulfan II	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4		4.1 4.1 4.1 4.1 4.1 4.1 4.1 6.6 3.7 4.1 7.6 4.1		3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8		1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4	
Alpha-BHC Gamma-BHC (Lindane) Beta-BHC Heptachlor Delta-BHC Aldrin Heptachlor Epoxide gamma-Chlordane Endosulfan I alpha-Chlordane 4,4'-DDE Dieldrin Endrin 4,4'-DDD Endosulfan II 4,4'-DDD	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4		4.1 4.1 4.1 4.1 4.1 4.1 4.1 4.1 6.6 3.7 4.1 7.6		3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 5.6 3.8 3.8		1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4	
Alpha-BHC Gamma-BHC (Lindane) Beta-BHC Heptachlor Delta-BHC Aldrin Heptachlor Epoxide gamma-Chlordane Endosulfan I alpha-Chlordane 4,4'-DDE Dieldrin Endrin 4,4'-DDD Endosulfan II 4,4'-DDT Endrin Aldehyde	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4		4.1 4.1 4.1 4.1 4.1 4.1 4.1 4.1 6.6 3.7 4.1 7.6 4.1 4.1 1.1	0 0 0 0 0 0 0 0 0 0 0 0 0 0	3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 6.5 3.2 3.8 3.8 3.8 6.5 3.2 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8	U U U U U U U U U U U U U U U U U U U	1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4	
Alpha-BHC Gamma-BHC (Lindane) Beta-BHC Heptachlor Delta-BHC Aldrin Heptachlor Epoxide gamma-Chlordane Endosulfan I alpha-Chlordane 4,4'-DDE Dieldrin Endrin 4,4'-DDD Endosulfan II 4,4'-DDT Endrin Aldehyde Endosulfan sulfate	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4		4.1 4.1 4.1 4.1 4.1 4.1 4.1 4.1		3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 6.5 3.2 3.8 3.8 3.8 6.5 3.2 3.8 3.8 6.5	U U U U U U U U U U U U U U U U U U U	1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4	
Alpha-BHC Gamma-BHC (Lindane) Beta-BHC Heptachlor Delta-BHC Aldrin Heptachlor Epoxide gamma-Chlordane Endosulfan I alpha-Chlordane 4,4'-DDE Dieldrin Endrin 4,4'-DDD Endosulfan II 4,4'-DDT Endrin Aldehyde Endosulfan sulfate Methoxychlor	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4		4.1 4.1 4.1 4.1 4.1 4.1 4.1 4.1	0 0 0 0 0 0 0 0 0 0 0 0 0 0	3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.8 6.5 3.2 3.8 3.8 5.6 3.8 3.8 3.8 3.8	U U U U U U U U U U U U U U U U U U U	1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4	

Project: WASHINGTON	CLOSURE	HANFORD)]					
Laboratory: LLI	SDG: K	<u></u>							
Sample Number		J10FJ2							
Remarks									
Sample Date		11/7/05						<u> </u>	
Extraction Date		11/15/05							
Analysis Date		11/18/05		<u> </u>					
Herbicides	RQL	Result	a	Result	Q	Result	Q	Result	Q
Dalapon	100	180	U				١		
Dicamba	100	72	U]			
Dichloroprop	100	180	U						
2,4-D	100	47					\bot		
2,4,5-TP (Silvex)	100	18	U						
2,4,5-T	100	18	U				_L_		
2,4-DB	100	180	υ						
Dinoseb	100	18	U						
Pentachlorophenol	100	14	U						

Lionvilla Laboratory, Inc.

Report Date: 11/22/05 12:04 PCBs by GC

RFW Batch Num	nber: 0511L671	Client: 1	rnų.	HANFORD RC-	в ру 030		rk O	rder: 1134	3606	001 Page: 1	•	
	Cust ID:	J10FJ2		J10FJ2		J10 P J2		J10FH7		J10FH8	J10FH	9
Sample	RFW#:	0.01		001 MS	١.	001 KSD	+	002		003	004	
Information	Matrix:	SOLID		SOLID		SOLID		SOLID		SOLID	SOLID	
•	D.F.:	1.00		1.0		1.0		1.0		1.00	1.0	
	Units:	UG/K	3	UG/K	:G	UG/K	G	UG/K	:G	UG/KG	UG/1	KG
Surrogate:	Tetrachloro-m-xylene	71	*	69	*	65	*	74	*	74 %	89	*
-	Decachlorobiphenyl	78	¥	82	*	66	*	81	*	72 🕻	87	*
	·									======fl===		_
Aroclor-1016_		36	Ū	96	₹	92	*	41	U	38 U	35	
Aroclor-1221_		_ 36	Ü	36	U	36	מ	41	U	38 U	35	
Aroclor-1232_		. 36	Ü	36	Ū	. 36	Ū	41	_	38 U	35	
Aroclor-1242_		_ 36	U	36	Ū	36	Ŭ	. 41	U	38 U	35	
arocior-1248	· · · · · · · · · · · · · · · · · · ·	_ 36	U	36	U		U	41	U .	38 U	35	
Aroclor-1254		. 36 25	IJ	36 99	U %	36 94	Ŭ %a	41 290	Ü '	38 U 200	35 35	
	Cust ID:	PBLKWF		PBLKWF BS						-		
Sample		05LE0892-M	B1	05LE0892-N	B1							
Information	Matrix:	SOIL	_	SOIL					•			
	D.F.:	1.00		1.0						•		
	Units:	UG/K	G	UG/K	CG			•				
Surrogate:	Tetrachloro-m-xylene	73	ક	67	*							
	Decachlorobiphenyl	78	*	86	*			•				
=======================================	B 副大学中央主义 表现 以 2 字 二二二二 和 2 2 2 2 2 2	2222	وع.		67			•		A1		
Aroclor-1016	医阿里利曼链接指导 杂类 法国家联络和国家联络		-IT	96	*= E 1 =		(SILE	#=========	≔II≃			== <u>f</u>
-		-		33	Ū							
Aroclor-1232		33		33	U							
Aroclor-1242		33	U	33	Ū							
Aroclor-1248		33	Ū	33	Ū	-				VV / X		
Aroclor-1254		33	U	33	Ü					1 (31)		

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

114

33 U

Aroclor-1260_

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Lionville Laboratory, Inc.

Pesticide/PCBs by GC, CLP List

Report Date: 11/17/05 12:54 RFW Batch Number: 0511L671 Client: TNUHANFORD RC-030 K0096 Work Order: 11343606001 Page: 1

Out TD	J10FJ2	J10 F J2	71 02 70	71.0999		77 077-0
Cust ID:	010402	O FORUM	J10FJ2	J10FH7	J10FH9	J10FH9
Sample RFW#:	001	001 NS	001 MSD	002	003	004
Information Matrix:	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
· D.F.:	4.00	4.00	4.00	10.0	10.0	4.00
Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate: Tetrachloro-m-xylene	89 %	100 %	80 %	81 %	81 %	99 %
Decachlorobiphenyl	88 %	94 %	86 %	81 %	87	97 ક
Alpha-BHC	1.4 U	:======fl=: 117	99 %		**************************************	
gamma-BHC (Lindane)	1.4 U	123		4.1 U	3.8 U	1.4 U
Beta-BHC	1.4 U	117 %	106 % 104 %	4.1 U	3.8 0	1.4 U
Beta-BHC Went achlor	1.4 U	117 %	104 %	4.1 U	3.8 U	1.4 U
Heptachlor	1.4 U	117 %		4.1 U	3.8 U	1.4 U
Aldrin	1.4 U	112 %		4.1 U	3.8 U	1.4 U
Aldrin_Heptachlor epoxide	1.4 U	117 %	101 % 108 %	4.1 U 4.1 U	3.8 U	1.4 U
gamma-Chlordane	1.4 U	111 %	104. %		3.8 U	1.4 0
Rodosulfan I	1 A 11	119 %	111 %		3.8 U	1.4 U
'alpha-Chlordane	1 / 17	116 %	109 %	4.1 U 4.1 U	3.8 U	1.4 U
4,4'-DDB	آري 1.2	127 * %	115 %	6.6	3.8 U 6.5 J	1.4 U 1.4 U
Dieldrin	1.4	125 %	111 %	3.7 J	3.2 J	1.4 U
Endrin	1.4 U	127 %	113 %	4.1 U	3.8 U	1.4 U
4,4'-DDD	1.4 U	148 + %	136 * %	4.1 U	3.8 U	1.4 U
Endosulfan II	1.4 U	129 * *	118 %	7.6 J	5.6	1.4 U
4,4'-DDT	1.4 U	122 %	111 %	4.1 U	3.8 U	1.4 U
Endrin aldehyde	1.4 U	98 %	95 %	4.1 U	3.8 U	1.4 U
Endosulfan sulfate	1.4 U	112	103 %	4.1 U	6.9 I	1.4 U
Methoxychlor	1.4 U	122 %	112 %	10	3.8 U	1.4 U
Endrin ketone	1.4 U	106	98 %	4.1 U	3.8 U	1.4 U
Toxaphene	14 U 🕽	14 U	14 U	41 0.5	38 الما	1.4 U J

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. % = Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Report Date: 11/17/05 12:54

Lionvilla Laboratory, Inc.

Pesticide/PCBs by GC, CLP List

RFW Batch Number: 0511L671 Client: TNUHANFORD RC-030 K0096 Work Order: 11343606001 Page: 2

				•		·		
	Cust ID:	PBLKWF		PBLKWF BS				
Sample	RFW#:	05LE0892-M	ß1	05LE0892-M	B1	•		•
Information	Matrix:	SOIL		SOIL		•		
	D.F.:	1.0	00	1.0	0		•	
	Units:	.DG/1	Œ	UG/K	G			
Surrogate:	Tetrachloro-m-xylene	71	*	81	*			
- -	Decachlorobiphenyl	73	*	76	*			
		========	=f1	*****	=fl==		.f]==========	flassessessesfl
Alpha-BHC		0.33	U	107	¥	·		•
	Lindane)	0.33	U	104	ક			
		0.33	U	101	ક			, •
Heptachlor		0.33	บ	102	*			
			U	110	*			
		0.33	U	86	ક			
Heptachlor e	epoxide	0.33	U	97	*			
	dane		U	99	*			
Endosulfan 1	r	0.33	U	98				
alpha-Chlord	iane	0.33	Ū	98	*			
0 4,4'-DDR		0.33	U	106	¥			
Dieldrin		0.33	Ū	101	ઢ			
Bndrin		0.33	U	101	ŧ			
4,4'-DDD		0.33	U	136 *	*		4	
Endosulfan 1	II	0.33	Ū	116	ቴ		•	
		0.33	U	104	ક			
	nyde	0.33	U	90	ŧ			•
	sulfate	0.33	Ų	93	¥			
		0.33	U	96	*	·		
Endrin ketor	1e	0.33		87	ł	-		
		3.3	U	3.3	Ū			•
•					_	· ·		,

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

1/31/02

Afrikal (

Lionville Laboratory, Inc.

Herbicides, Special List

	Cust ID:	J10PJ:	2	J10FJ	2	J10FJ	2	PBLKMJ		PBLKWJ BS		
Sample	RFW#:	00:	L	001 K	s	001 MS	D	05LE0904-M	B 1	05LE0904-1	KB1	
Information	Matrix:	SOLID	•	SOLID		SOLID		SOIL		SOIL		
	D.F.:	1.0	00	1.	00	1.0	00	1.0	0	1.0	00	
	Units:	ug/)	c g	ug/	kg	ug/l	kg	ug/k	g	ug/l	kg	
Surrogate:	DCAA	128	*	98	*	83	*	68	&	48	*	
电电影技术和开充电影影响电影电影电影观察			-=fl-=	*****	==fl==		==f1	=========	=f1	=========	-=fl	
Dalapon		180	U	99	¥	83	ક	170	U	32	ક	
Dicamba		72	Ü	72	¥	59	¥	67	Ū	32	*	
Dichloroprop		180	U	106	*	93	¥	170	σ	45	*	
2,4-D		47		89	¥	73	왐	33	Ū	41	*	
2,4,5-TP (Silvex)		18	Ų	102	*	93	ક	17	U	51	*	
2,4,5-T		18	U	105	¥	90	웋	17	Ū	46	*	
2,4-DB	·	180	U	· 112	የ	146	*	170	ប	63	*	
Dinoseb		18	U	120	*	111	*	17	Ü	103	*	
Pentachlorophenol		14	Ū	130	¥	120	ş.	13	Ü	54	ę.	

1/3/100

And sold

Report Date: 11/28/05 13:59

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Laboratory Narrative and Chain-of-Custody Documentation



Case Narrative

Client: TNU-HANFORD RC-030

LVL#: 0511L671

SDG/SAF # K0096/RC-030

W.O. #: 11343-606-001-9999-00 **Date Received:** 11-09-2005

PCB

Four (4) solid samples were collected on 11-07-2005.

The samples and their associated QC samples were extracted on 11-11-2005 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 11-16-2005. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8082.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

- All results presented in this report are derived from samples that met LvLI's sample acceptance policy. 1.
- The samples were extracted and analyzed within required holding time. 2.
- Samples and their associated QC samples received Copper-Sulfur and Sulfuric Acid cleanups according 3. to Lionville Laboratory SOPs based on SW846 methods 3660A and 3665A respectively.
- 4. The method blank was below the reporting limits for all target compounds.
- 5. All surrogate recoveries were within acceptance criteria.
- The blank spike recoveries were within acceptance criteria. 6.
- All matrix spike recoveries were within acceptance criteria. 7.
- 8. The initial calibrations associated with this data set were within acceptance criteria.
- 9. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
- LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state 10. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
- I certify that this sample data package is in compliance with SOW requirements, both technically and 11. for completeness, other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Laboratory Manager

Lionville Laboratory Incorporated

kim\r:\group\data\pest\tnu hanford\0511-671.pcbs The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 9 pages. 0000170000002

Lionville Laborator	y Sample Discr	epancy Repoi	t (SDR) SDR#:	<i>056</i> 0.530
Initiator: OR Date: 1/2/05 Client: OR	Batch: <u>TC</u> Samples: Method: sws4	EMCAWW/CLP/	Parameter: (DACB
			Sampler Error on C-O-C	
b. General Discrepancy	•.	-	Other	
	Container Broken Insufficient Sample Not Amenable to Ana	Preserva		el ID's Illegible eived Past Hold
Note*: Verified by [Log-In] or [Prep Gro	· · · · · · · · · · · · · · · · · · ·			-1
c. Problem (Include all relevant 11/14/05 WAS 'INAGUE' HOWEVEE WHE IEV USET EXPIRED CURVE. FCBS COPY OF SDE WILL BE KEEP	THE ACCOUNTS COTION	המאימה בהביוה המאים כ בהביוה	Darde Expression	1.00 1.11 (11) 162
2. Known or Probable Causes(s)			
3. Discussion and Proposed Ac Re-log Entire Batch Following Samples: Re-leach Re-extract Re-digest Revise EDD Change Test Code to Place On/Take Off Hold (circle		escription:		
4. Project Manager Instructions Concur with Proposed Action Disagree with Proposed Action Include in Case Narrative Client Contacted: Date/Person Add Cancel	on; See Instruction			
5. Final Actionsignature/date: Verified re-[log][leach][extract] Included in Case Narrative Hard Copy COC Revised Electronic COC Revised EDD Corrections Completed	[digest][analysis] (circle)	Other Expla	nation:	
When Final Action has been reco		to QA Specialist fo	r distribution and filing.	
Route Distribution of Completed S X Initiator X Lab General Manager: X Project Mgr: Stone/John Data Management: Stilv Sample Prep: Beegle/Ki	M. Taylor son vell	Meta Inorg GC/L MS: F Log-i	ion of <u>Completed</u> SDR is: Beegle anic: Perrone C: Kiger Rychlak/Daley n: Perry n:	



Case Narrative

Client: TNU-HANFORD RC-030

LVL#: 0511L671

SDG/SAF # K0096/RC-030

W.O. #: 11343-606-001-9999-00 Date Received: 11-09-2005

CHLORINATED PESTICIDES

Four (4) solid samples were collected on 11-07-2005.

The samples and their associated QC samples were extracted on 11-11-2005 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 11-15-2005. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8081A.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

- 1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
- 2. The required holding time for extraction and analysis was met.
- 3. The samples and their associated QC samples received a Copper-Sulfur cleanup according to Lionville Laboratory SOPs based on SW846 method 3660A.
- 4. The method blank was below the reporting limits for all target compounds.
- 5. All surrogate recoveries were within acceptance criteria.
- 6. One (1) of twenty (20) blank spike recoveries was outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
- 7. Four (4) of forty (40) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
- 8. All samples required 4 to 10-fold dilution due to the nature of the sample matrix. The reporting limits were adjusted to reflect the necessary dilution.
- 9. The initial calibrations associated with this data set were within acceptance criteria.
- 10. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria with the exception of CCV analyzed on 11-15-2005 on RTX-CLP column. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
- 11. The Endrin standard analyzed prior to sample extracts were within acceptance criteria with the exception of Endrin Standard analyzed on 11-14-2005 at 09:21 A.M. on the RTX-CLP2 column. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
- 12. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
- 13. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Iain Daniels

Laboratory Manager

Lionville Laboratory Incorporated

som\r:\group\data\pest\tnu hanford\0511-671.pst

The results presented in this report relate only to the analytical testing and conditions of the samples at least of the samples at least of the analytical data. Therefore, this report should only be reproduced in its entirety of 1 2 pages.

Lionville Laboratory S	ample Discrepancy Report	(SDR) SDR #: 0560 521
Initiator: Explose Date: (1) 105 Client:	Batch: <u>0511071</u> Samples: Method: <u>SW846/MCAWW/CLP/</u>	Parameter: QOSH Matrix: SOLO Prep Batch: QS/E088992
b. General Discrepancy Missing Sample/Extract Co Hold Time Exceeded ins Improper Bottle Type No Note Verified by [Log-In] or [Prep Group] (circ	ntainer Broken Wrong Test Code O ntainer Broken Wrong Sar ufficient Sample Preservati t Amenable to Analysis te)signature/date: ic results: attach data if necessary() &	ampler Error on C-O-C ther mple Pulled Label ID's Illegible on Wrong Received Past Hold Paccery Received Past Hold Received Past Hold
3. Discussion and Proposed Action Re-log Entire Batch Following Samples: Re-leach Re-extract Re-digest Revise EDD Change Test Code to Place On/Take Off Hold (circle)	Other Description: Aarrate A	<u></u>
4. Project Manager Instructionssignat Concur with Proposed Action Disagree with Proposed Action; Se Include in Case Narrative Client Contacted: Date/Person Add Cancel	7	0.5
5. Final Actionsignature/date: Verified re-[log][leach][extract][diges Included in Case Narrative Hard Copy COC Revised Electronic COC Revised EDD Corrections Completed	Other Explana st][analysis] (circle)	ition:
When Final Action has been recorded	, forward original to QA Specialist for	distribution and filing.
Route Distribution of Completed SDR X Initiator X Lab General Manager. M. Ta X Project Mgr. Stoke/Johnson Data Management: Stilwell Sample Prep: Beegle/Kiger	Metais ylor Inorgal GC/LC MS: Ry Log-in:	/chlak/Daley Регту

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: 0560523			
Initiator: OHE Batch: OSILGTICH, CTS, LOG Parameter: OCRH Date: III 17 105 Samples: 2-4, AII, AII, AII Matrix: SOIID Client: TOO Method: SW845MCAWW/CLPI Prep Batch: OSE 1884, OSIED			
1. Reason for SDR a. COC Discrepancy Tech Profile Error Client Request Sampler Error on C-O-C			
Transcription Error Wrong Test Code Other			
Note*: Verified by [Log-In] or [Prep Group] (circle)signature/date: c. Problem (Include all relevant specific results; attach data if necessary) CCV'S DOCE TO SAMPLE.			
ONDINGS WELL (NOVERSED ON PTX CLD COLUMN). USED ONLY FOR CONFIRMALI ON PURPOSES. DOES NOT IMPAIR A BILLY TO DETERT. NOTOTE			
2. Known or Probable Causes(s)			
3. Discussion and Proposed Action Re-log Entire Batch Following Samples: Re-leach Re-extract Re-digest Revise EDD Change Test Code to Place On/Take Off Hold (circle) Other Description: Other Description: Author Other Description:			
4. Project Manager Instructionssignature/date			
5. Final Actionsignature/date: Verified re-[log][leach][extract][digest][analysis] (circle) Included in Case Narrative Hard Copy COC Revised Electronic COC Revised EDD Corrections Completed			
When Final Action has been recorded, forward original to QA Specialist for distribution and filing.			
Route Distribution of Completed SDR X Initiator X Lab General Manager: M Taylor X Project Mgr: Stone/Johnson Data Management: Stilwell Sample Prep: Beegle/Kiger Route Distribution of Completed SDR Metals: Beegle Inorganic: Perrone GC/LC: Kiger MS: Rychlak/Daley Log-in: Perry Admin: Other:			

000021

QA-105-A-0805

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: 656519
Initiator: DR Batch: 05/10/12,043,671 Parameter: 000000000000000000000000000000000000
1. Reason for SDR a. COC Discrepancy Tech Profile Error Client Request Sampler Error on C-O-C Transcription Error Wrong Test Code Other
b. General Discrepancy Missing Sample/Extract Container Broken Wrong Sample Pulled Label ID's Illegible Hold Time Exceeded Insufficient Sample Preservation Wrong Received Past Hold Improper Bottle Type Not Amenable to Analysis
Note: Verified by [Log-In] or [Prep Group] (circle)signeture/date: c. Problem (Include all relevant specific results; attach data if necessary) ANAYSIS DATE 11/4/05 EVOL 0. 09: 21: 07 - + xrakdown Evcleded 15% (ritting 5) initially on retx up? (158) The xcceed, no CCV and Soires were Allestade, as Endin And its breakdown Tradicals. Wasturd AFFERNEY black also meteritaria, No Endince by Products in Samples. Warrate? no significiant impact.
2. Known or Probable Causes(s)
3. Discussion and Proposed Action — Re-log — Entire Batch — Following Samples: — Re-leach — Re-extract — Re-digest — Revise EDD — Change Test Code to — Place On/Take Off Hold (circle)
4. Project Manager Instructionssignature/date: Concur with Proposed Action Disagree with Proposed Action; See Instruction Include in Case Narrative Client Contacted: Date/Person Add Cancel
5. Final Actionsignsture/date:
When Final Action has been recorded, forward original to QA Specialist for distribution and filing.
Route Distribution of Completed SDR X Initiator X Lab General Manager: M. Taylor Data Management: Stilwell Sample Prep: Beegle/Kiger Route Distribution of Completed SDR Metals: Beegle Inorganic: Perrone GC/LC: Kiger MS: Rychlak/Daley Log-in: Perry Admin: Other:



Case Narrative

Client: TNU-HANFORD RC-030

LVL#: 0511L671

SDG/SAF # K0096/RC-030

W.O. #: 11343-606-001-9999-00 Date Received: 11-09-2005

HERBICIDE

One (1) solid sample was collected on 11-07-2005.

The sample and its associated QC samples were extracted on 11-15-2005 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 11-18-2005. The extraction and analysis procedures were based on method 8151A.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

- 1. All results presented in this report are derived from a sample that met LvLI's sample acceptance policy.
- 2. The sample was extracted and analyzed within required holding time.
- 3. The method blank was below the reporting limits for all target compounds.
- 4. All surrogate recoveries were within acceptance criteria.
- 5. All blank spike recoveries were within acceptance criteria.
- 6. All matrix spike recoveries were within acceptance criteria.
- 7. The initial calibrations associated with this data set were within acceptance criteria.
- 8. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
- 9. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
- 10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Iain Daniels

Laboratory Manager

Lionville Laboratory Incorporated

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The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 8 pages.

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Washington Closus	re Hanford	CI	IAIN OF CUST	rody/s	AMPL	E ANAL	YSIS	REQUES	T	Re	C-030-026	Page 1	of <u>2</u>
Collector STANKOVICH/HUDSON			ny Contact e Stankovich	Telepho 531-7				Project Coord KESSNER, JH		Price Code	9C	Data Tur	
Project Designation Remaining Sites Confirmation	n Sampling - Other Solid		ng Lecation D-50:9					SAF No. RC-030		Air Qualit	у 🗀	151	Days N
Ice Chest No. AFS	-04-120	Field 1 EL-	.ogbook No. 1578		COA CIODRI	6700		Method of Sa FedEx	-	·		, .	
Shipped To EBERLINE SERVICES / LIC	ONVILLE	Offsite	Property No.	1060	108			Bill of Ladins	VAIr BIII	na ee 05	AC	· - -	
POSSIBLE SAMPLE HAZA				N.				1	1	ļ			
NonRed			Preservation	Hone	Mone	CookiC	Cool	C Cool 4C	Cool 4				
Special Handling and/or S	itorage		Type of Container	G/P	G/P	aG.	G	aG	G				
A -1 1/2	c		No. of Container(s)		1	1	N'	. 1				<u> </u>	
0	_		Volume	500 L	120mL	60mL	6	i. 60mL	2.5 m	L	,		
つの 00 00 00 00 00 00 00 00 00 00 00 00 00	Sample analy	SIS		See item (p. in Special Instruction	See item (2) i Special Instructions	Pesticides -	VOA -	SOA Semi-VOA - 8276A (TCL	TPH (T	D-			
Sample No.	Matrix *	Sample Date	Sample Time	547.									
J10FH7	OTHER SOLID	11/7/05	0820	Mink I now	X			X	* ************************************	407 2X 341		eres dan e	医 医砂油 医白色
J10FH8	OTHER SOLID	1/15/05	0820	-	×	- X	·	X	+	- 			
J10FH9	OTHER SOLID	16/7/03			X	+ >		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	 				
J40F10	OTHER SOLID	n/) -1- C			 		 		1	- 			
J10FJ1	-OTHER SOLID	1 07 05		 	1 -		 		1				
CHAIN OF POSSESSIO		Sign/Print	Names	<u> </u>	SPE	CIAL INSTR	LUCTIO)NS	1	L		,	Matrix *
Religion in bed By/Removed From	Date/Time /330	Received By/Stor	8/2C 11/7/	ate/Time) 5 / 3 ate/Time	30 (1) Bur	Gamma Spectro opium-155); Ga	scopy (TO	· CL List) (Cesium- :- Add-on (Ameri	cium-241);	Americium-241;	52, Europium-t54 Gross Alpha & G	ross Beta;	f-Roit SB-Saliment BO-Salid
Relinquished By/Removed From 5728 (2e f 2c)	(1/8/05 1000	Received BySipon	الع		233	/234, Uranium- 2	35, Urani	um-238); Total Ui	anium		Isotopic Urunium		SteStatge W = Water
Relimpished By/Removed From	Date/Time	Received By/Stor	ed in D	alc/Tiese	Cad	kmium, Calcium,	Chromiu	n, Coball, Copper	Iron, Lead	Magnesium, M	, Beryllium, Boros anganese, Molybd reury - 7471 - (C)	enuos	O=Oil A=Ais DS=Duos Salids DL=Dram Liquids
Relinguished MyRamoved From	Date/Time	Receipted By/Ston	end 11-9-05	ale/Time 0935				÷	,				TeTisas WieWips LeLiquid VeVegatation
Relinquished By/Removed From	Date/Time	Received By/Stor	ed in O	ta te/Tirme	}								X-Other
Relinquished By/Removed Prom	Date/Time .	Received By/Stor	ed In D	ate/Time				•					
LABORATORY Received By SECTION	у			т	itle	,					ū	ste/Time	
FINAL SAMPLE Disposal M DISPOSITION	lethod					Disp	osed By					Date/Tinne	

Washington Closure Hanford	CI	IAIN OF CUST	ODY/S	AMPI	E ANAL	YSIS	RE	EQUEST	4	RC	-030-026	Page 2	of 2
Collector STANKOVICH/HUDSON		ny Contact Stankovich	Telephor 531-70					lect Coordi	sator	Price Code	9C	Data Tu	rearound
Project Designation Remaining Sites Confirmation Sampling - Other Solid		ng Location D-50:9						F No. -030		Air Quality	<i>r</i> 🗆	15	Days
Ice Christ No. E124-01-027	Field L EL-1	ogbook No. 578		COA C10DR	16700		1	thod of Ship edEx	men!				
Shipped To EBERLINE SERVICES LIONVILLE	Offsite	Property No.	4060	109	7		Bill	of Lading/	Air Bül I	No. 50	e OS	PC	
POSSIBLE SAMPLE HAZARDS/REMARKS			19	1	1		.				T .]]
Non Rad		Preservation	None of	Nam: G/P	Cool 4C	Cool	4	Cool 4C	Cool 40	:	ļ		
Special Handling and/or Storage		Type of Container	3	<u> </u>	a 6	٥,	S	∎G	G		<u> </u>		
Lool Yoc	·	No. of Container(s) Velume	Stant.	120mL		600	./ L	1 60mL	1 250ml				
OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO			Success (1) in special sustanactions.	See item (2 Special Instruction	Pesticides -	y da	260A	Semi-VOA - 1270A (TCL)	TPH (Tota 418.1				
Sample No. Matrix * Sar	nple Date	Sample Time	建筑				iles iles						300.55
J10FJ2 OTHER SOLID ///7		1700	*	X	X			×	X				,
OTHER SOLID BH II	7765	•		ļ									
	····		 				_			_	<u> </u>	ļ	
		 		<u> </u>					·			ļ	
CHAIN OF POSSESSION	Sign/Print	Names	<u> </u>	len	ECIAL INSTR	110010					<u> </u>	<u>l. </u>	1 1 1 1 1 1
Relinquished By/Removed From Date/Time 10 3	ved By/Store 28 BLD	642B (700 1((1) Es) Gamma Spectros gopium-155); Gam	scopy (TC	CL Lis	d-ou (Americk	uu-2411: /	Americium-241: C	lmss Áloha &	Gmat Beta:	Matrix * S-Soil Sii-Saliment SO-Soils
2169 KKI 20 11100 1230 G	Wed By/Spore	11/8/	ite/Time ひと / で ite/Time	23 23	ckel-63; Isotopic F 3/234, Uranism-23 1CP Metals = 601	iktonium 15, Uranii	r, Stroi um-23	otium-29,90 — 18}; Total Uran	Total Sr;] ium	Technetium-99; Is	otopic Uraniu	n (Uranium-	Si-Shide W = Water O-Oil
D 37 JOHL. Wed 11/8/05 1230	vod By/Store	EX		Ca	dmium, Calcium, (ckel, Potassium, S	Chromium	n, Col	bult, Copper, Ir	on, Lead.	Magnesium, Man	vanere. Makit	denom	A-Air DS-Droro Solida DL-Drom Liquida
Relinquited By Dymoved From Date/Time Rece	yya BySute	d in De	del'ime	× 🗇									T=Tistut Wi=Wips
	ved By/Store	d in Da	ste/Time	_									EmLiquid Vn Vogession XmOther
Relinquished By/Removed From Date/Time Rece	ved By/Store	d In Da	te/Time						•			* .	-
LABORATORY Received By SECTION	************		Tit	le							1	Date/Time	I —
FINAL SAMPLE Disposal Method DISPOSITION		·			Dispos	ed By	-	<u>.</u>				Date/Tinse	 ,

Data Validation Supporting Documentation

VALIDATION LEVEL:	A	В	C	D	E
PROJECT: 10	DU-D-50:9	}	DATA PACKAG	E: K009 (,
VALIDATOR:	TI	LAB: L	$\mathcal{I}_{\mathbb{Z}}$	DATE: 1/20	0/06
			SDG:	K0496	
		ANALYSES	PERFORMED		
SW-846 8081	SW-846 8081 (TCLP)	SW-846 8082	SW-846 8081 (TCLP)	81514	
SAMPLES/MAT	RIX				
JOFJ	t s	10fH7	JUFA	H8 510f	H5
				osle	solD
Technical verificat		present?	CASE NARRATIV	TE .	Yes No N/A
			IBRATIONS (Lev		Yes No N/A
Continuing calibrat	ions acceptable?				Yes No N/A
					1
-					1
	-			***************************************	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
	-				

3.	BLANKS (Levels B, C, D, and E)				15
Calib	oration blanks analyzed? (Levels D, E)		. Yes	No	(MA)
	oration blank results acceptable? (Levels D, E)			•	_
Labo	oratory blanks analyzed?		Yes	No	N/A
Labo	oratory blank results acceptable?		Yes	No	N/A
Field	/trip blanks analyzed? (Levels C, D, E)		Yes(No)	N/A
Field	I/trip blank results acceptable? (Levels C, D, E)		. Yes	No	N/A)
	scription/calculation errors? (Levels D, E)				W
Com	ments:	No	FR) !	
4.	ACCURACY (Levels C, D, and E) ogates analyzed?		~ <u>~</u>	No	N/A
	-				N/A N/A
	ogate recoveries acceptable?				
	ogates traceable? (Levels D, E)				
	ogates expired? (Levels D, E)		-		
	MSD samples analyzed?	•			N/A
	MSD results acceptable?			、 丿	~
	MSD standards NIST traceable? (Levels D, E)				~~
	MSD standards expired? (Levels D, E)		/200	•	~
	/BSS samples analyzed?			١.	
	/BSS results acceptable?		_	-	
	dards traceable? (Levels D, E)			_ \	$-\!\!\!/\!\!\!\!/$
Stan	dards expired? (Levels D, E)	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Yes	No	NA
Tran	scription/calculation errors? (Levels D, E)	•>:	Yes	No	(1/A)
Perfe	ormance audit sample(s) analyzed?		Yes	Ma) N/A
Perfe	formance audit sample results acceptable?	·····	Yes	No	(1/A)
Com	ments: M5 4,4-DDE - Jell detect		Λ	<u>ر</u>	PAC
	no toxaphere instante uspaso/Los	s - Delp			

(. Ý _e)	No	N/A
(Ye)	No	N/A
Yes	No	N/A
Yes	No	V/A
Yes	No	W
Yes	No	NA —
		· · · · · · · · · · · · · · · · · · ·
Yes	No/	N/A
Yes	No	N/A
·		\sim
		<u>.</u>
	·	
	.,	27/4
()	No	N/A
		
		
	Yes Yes Yes Yes Yes Yes Yes Yes	Yes No N

•		No N/A
Results reported for all requested analyses?		No (N/A
Results reported for all requested analyses?		
•		No M/A
- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1		No N/
Results supported in the raw data? (Levels D, E)	Yes	No AP
Samples properly prepared? (Levels D, E)	Yes	No (N/A
Detection limits meet RDL?		
Transcription/calculation errors? (Levels D, E)	Yes	No (N/A
	•	
9. SAMPLE CLEANUP (Levels D and E)		
Fluoricil ® (or other absorbent) cleanup performed?	Yes	No N
Lot check performed?		i 1
Check recoveries acceptable?		1
GPC cleanup performed?		
GPC check performed?	Yes	No N/A
GPC check recoveries acceptable?	Yes	No N/A
GPC calibration performed?	Yes	No N/A
GPC calibration check performed?		
GPC calibration check retention times acceptable?	Yes	No N/A
Check/calibration materials traceable?	Yes	No N/A
Check/calibration materials Expired?	Yes	No N/A
Analytical batch QC given similar cleanup?	Yes	No N/A
Transcription/Calculation Errors?	Yes	No N/

Date: 2 February 2006

To: Washington Closure Hanford Inc. (technical representative)

From: TechLaw, Inc.

Project: Remaining Sites Confirmation Sampling - Other Solid - Waste Subsite

is 100-D-50:9

Subject: Wet Chemistry - Data Package No. K0096-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. K0096 prepared by Lionville Laboratory Inc. (LLI). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

	i de la	a ivreidien in	. Validanona	on contract some
J10FJ2	11/7/05	Solid	С	See note 1

^{1 -} Total petroleum hydrocarbons by 9071.

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, Rev. 4, February 2005). Appendices 1 through 6 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers

Appendix 2. Summary of Data Qualification

Appendix 3. Qualified Data Summary and Annotated Laboratory Reports

Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation

Appendix 5. Data Validation Supporting Documentation

Appendix 6. Additional Documentation Requested by Client

DATA QUALITY PARAMETERS

Holding Times

Analytical holding times for metals are assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be analyzed within 28 days for TPH.

If holding times are exceeded, but not by greater than two times the limit, all associated sample results are qualified as estimates and flagged "J" for detects and "UJ" for non-detects. If holding times are exceeded by greater than two times the limit, all associated detectable sample results are qualified as estimates and flagged "J" and all non-detects are rejected and flagged "UR".

All other holding times were acceptable.

· Method Blanks

Method Blanks

Method blank analyses are performed to determine the extent of laboratory contamination introduced through sampling, sample preparation and analysis. At least one acceptable method blank analysis must be conducted for every 20 samples. No contaminants should be present in the method blank. All blank results must fall below the contract required detection limit (CRQL) to be acceptable.

All method blank results were acceptable.

Field (Equipment) Blank

No field blanks were submitted for analysis.

Accuracy

Matrix Spike and Laboratory Control Sample

Matrix spike (MS) and laboratory control sample (LCS) analyses are used to assess the analytical accuracy of the reported data. The matrix spike is used to assess the effect of the matrix on the ability to accurately quantify sample concentrations. Recoveries must fall within the range of 70% to 130%. Samples with a recovery of less than 30% and a sample result below the IDL are rejected and flagged "UR". Samples with a recovery of 30% to 69% and a sample result less than the IDL are qualified "UJ". Samples with a recovery of greater than 130% or less than 70% and a sample result greater than the IDL are qualified as estimates and flagged "J".

Finally, for samples with a recovery greater than 130% and a sample result less than the IDL, no qualification is required.

All accuracy results were acceptable.

Precision

Laboratory Duplicate Samples

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of matrix spike duplicate (MSD) analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the CRDL and the RPD is less than 30%, no qualification is required. If either activity

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(concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All laboratory duplicate results were acceptable.

Field Duplicate

No field duplicates were submitted for analysis.

Analytical Detection Levels

Reported analytical detection levels are compared against the required quantitation limits (RQLs) to ensure that laboratory detection levels meet the required criteria. All analytes exceeded the RQL. Under the WCH statement of work, no qualification is required.

Completeness

Data package K0096 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

All analytes exceeded the RQL. Under the WCH statement of work, no qualification is required.

REFERENCES

WCH, Contract #20266, *Validation Statement of Work*, Washington Closure Hanford Incorporated, July 7, 2003.

DOE/RL-96-22, Rev. 4, 100 Area Remedial Action Sampling and Analysis Plan, U.S. Department of Energy, February 2005.

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with BHI validation SOW are as follows:

- Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.
- UJ Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.
- J Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.
- BJ Applied to inorganic analyses only. Indicates the analyte concentration was greater than the IDL but less than the CRDL and is considered an estimated value.
- R Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.
- UR Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.
- Indicates presumptive evidence of a compound at an estimated value.
 The data may not be valid for some specific applications (i.e., usable for decision-making purposes).
- Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

Summary of Data Qualification

WET CHEMISTRY DATA QUALIFICATION SUMMARY*

SDG: K0096	REVIEWER: TLI	PROJECT: 100-D-50:9	PAGE_1_OF_1
COMMENTS: No qualif	iers assigned		

^{* -} The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Qualified Data Summary and Annotated Laboratory Reports

Project: WASHINGTON CLOSU	RE HAN	FORD	
Lab: LLI	SDG:	K0096	
Sample Number		J10FJ2	
Remarks			
Sample Date		11/7/05	
Wet Chemistry	RQL	Result	Q
Total Petroleum Hydrocarbons	5	144	U
			Г

INORGANICS DATA SUMMARY REPORT 11/18/05

CLIENT: TNUHANFORD RC-030 K0096 WORK ORDER: 11343-606-001-9999-00 LVL LOT #: 0511L671

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	PACTOR
		CTISCISSERBERENARRERE	*******		P#########	
-001	J10FJ2	* Solids	92.0	*	0.01	1.0
		Petroleum Hydrocarbons	144 u	MG/KG	144	1.0
-002	J10FH7	% Solida	82.0	•	0.01	1.0
-003	J10FH8	% Solids	86.8	•	0.01	1.0
-004	J10PH9	∜ Solids	95.7	•	0.01	1.0

1/31/04

Laboratory Narrative and Chain-of-Custody Documentation



Analytical Report

Client: TNU-HANFORD RC-030 K0098

LVL#: 0511L671

W.O.#: 11343-606-001-9999-00

Date Received: 11-09-05

INORGANIC NARRATIVE

1. This narrative covers the analyses of 4 solid samples.

2. The samples were prepared and analyzed in accordance with the methods checked on the attached glossary.

LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete list of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

- 3. Sample holding times as required by the method and/or contract were met.
- 4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.
- 5. The method blank for Petroleum Hydrocarbons (PHC) was within the method criteria.
- 6. The Laboratory Control Sample (LCS) for PHC was within the laboratory control limits.
- 7. The matrix spike recovery for PHC was within the 75-125% control limits.
- 8. The replicate analysis for PHC was within the 20% Relative Percent Difference (RPD) control limit.
- 9. Results for solid samples are reported on a dry weight basis.
- 10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels

Laboratory Manager

Lionville Laboratory Incorporated

nip\ill-+671

11/21/05 Date

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 12 pages.

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Washington Closu	re Hanford	C	HAIN OF CUST	CODY/S/	AMPLE	ANAL	VSIS	REQUEST	,	RC	-030-026	Page 1	of 2
Collector STANKOVICH/HUDSON		Comm	any Contact ce Stankovich	Telephon 531-76	e No.			Project Coordi KESSNER, JH		Price Code	9C	Data Tu	rnarouad
Project Designation Remaining Sites Confirmation	on Sampling - Other Soli	Samp	ling Location					SAF No. RC-030		Air Quality		15]	Days
	-01-027	Field	Logbook No. -1578		COA CIODRI6	700	·	Method of Ship FedEx	ence t				
Shipped To EBERLINE SERVICES (C)	IONVILLE	Offsi	e Property No.	4060				Bill of Lading/	Air Bill (vo. 500	· 05	PC	
POSSIBLE SAMPLE HAZ	í		Preservation	25.6		Coal 4C	Cool	()	Cool 40				
Special Handling and/or	Storage		Type of Container	GC	G/P	#G	1		G			<u> </u>	
- (00)	4°C		No. of Container(s)	25 ml	120mL	60mL	604	L 60mL	250ml			<u> </u>	
	•		Volume	4357			7/	L					
Special Handling and/or s	Sample anai	Lysis		pecial lestractions	See item (2) in Special Instructions.	PCBs - 8082; Penticides - 8081; Chloro- Herbicides - EPAS 51		260A SCEL-VOA - 1270A (TCL)	TPH (Tota 438.1	0-			
Sample No.	Matrix *	Sample Date	Sample Time							Carlo Sign			-71-E108
J10FJ2	OTHER SOLID	11/7/05	1200		X	X	Spring Colors	×	X	1000		Las Market in	
J10FJ3	OTHER SOLID	BH 117765											
				ļ <u></u>									
CHAIN OF POSSESSIO	<u> </u>	Sign/Prin	t Names	<u> </u>	Sper	CIAL INSTR	TICTO) NG		<u> </u>	<u> </u>	<u> </u>	Matrix *
Relinquished By/Removed From 3728 Re 28 ft Relinquished By/Removed From	1/8/05 1230	Received By/Sto Received By/Sto Received By/Sto	red in D red in D	ate/Time // 05 / Z ate/Time ate/Time // 05 / Z ate/Time	(1) G Europ Nicke 233/2 (2) 16 Cadar Nicke	iamum Spectros sium-155}; Gan il-63; Isotopic F 34, Uranium-2: CP Metals - 601 sium, Calcium,	ncopy (TO nma Spec Mutomium 15, Urani 10A (SW Chromium	CL List) (Cesium-13: - Add-on (Americi r; Strontissn-89,90 um-238); Total Ura -846) (Alaminam, A n, Cobalt, Copper, I Silicon, Silver, Sodi	um-241); / Total Sr; 1 num minnony, / ron, Lead. i	Americiam-241; G Fechnetiam-99; Is Arsenic, Barium, E Magnesiam, Mag	iross Alpha & (otopie Uranium Jeryllium, Boro ranese, Molybo	Gross Beta; 1 (Uranium- sa, denum	S-Sold SB-Indiment SO-Solid SI-Dadge W = Water O-OR A-Air CS-Dron Solids Du-Drum Liquids T-Tisme Wi-Wipe L-Liquid V-Vegatation X-Other
Relinquished By/Removed From	Date/Time	Received By/Sto	red In D	ate/Time									
LABORATORY Received B	ly .			Titl	•						٥	ate/fime	
FINAL SAMPLE Disposal M DISPOSITION	lethod	<u> </u>				Dispo	sed By				ſ	Date/Time	

Data Validation Supporting Documentation

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION

LEVEL:	1	ľ				
PROJECT:	100-D-50	19	DATA PACKAC	EE: KOOS	76	
VALIDATOR:	TLI	LAB: L	LI	DATE: //	20/06	
			SDG:	10096		
		ANALYSE	S PERFORMED			
Anions/IC	тос	TOX	TPH-418.1	Oil and Grease	Alkalinit	у
Ammonia	BOD/COD	Chloride	Chromium-VI	рН	NO₃/NO	2
Sulfate	TDS	TKN	Phosphate			-
SAMPLES/MA	TRIX					
11	OFJZ				· · · · · · · · · · · · · · · · · · ·	
					501.	D
Technical verifica		present?	CASE NARRATIV			<u>р</u> м <u>о</u> и
Technical verification	ation documentation	present?				
Technical verification Comments:	JMENT PERFOR	present?		vels D and E)	Ye.	мо м
Technical verification Comments: Instruction Technical verification	ution documentation JMENT PERFORI s performed on all in	MANCE AND CA	ALIBRATIONS (Le	vels D and E)	Ye	No) N
Technical verification Comments: Instruction Initial calibration	JMENT PERFORI s performed on all in	MANCE AND CA	ALIBRATIONS (Le	vels D and E)	Yes	No N
Technical verification Comments: 2. INSTRU Initial calibration Initial calibration ICV and CCV ch	JMENT PERFORI s performed on all in s acceptable?	MANCE AND Canstruments?	ALIBRATIONS (Le	vels D and E)	YesYesYes	No N
2. INSTRU Initial calibration ICV and CCV ch ICV and CCV ch Standards traceab	JMENT PERFORI s performed on all in ecks performed on a ecks acceptable?	MANCE AND Canstruments?	ALIBRATIONS (Le	vels D and E)	Yes Yes Yes Yes Yes Yes	No N
2. INSTRU Initial calibration ICV and CCV ch ICV and CCV ch Standards traceat	JMENT PERFORI s performed on all in s acceptable? ecks performed on a ecks acceptable?	MANCE AND Canstruments?	ALIBRATIONS (Le	vels D and E)	Yes Yes Yes Yes Yes Yes Yes	No N
2. INSTRU Initial calibration Initial calibration ICV and CCV ch ICV and CCV ch Standards traceab Standards expired Calculation check	JMENT PERFORI s performed on all in ecks performed on a ecks acceptable?	MANCE AND Canstruments?	ALIBRATIONS (Le	vels D and E)	Yes Yes Yes Yes Yes Yes Yes Yes	No N

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

3.	BLANKS (Levels B, C, D, and E)			
ICB aı	and CCB checks performed for all applicable analyses? (Levels D, E) Yes	No	(N/A
	and CCB results acceptable? (Levels D, E)	A		
Labor	ratory blanks analyzed?	<u>Ves</u>	No	N/A
Labor	ratory blank results acceptable?		No	N/A
Field l	blanks analyzed? (Levels C, D, E)	Yes	No) N/A
Field l	blank results acceptable? (Levels C, D, E)	Yes	No	N/A
Transo	scription/calculation errors? (Levels D, E)	Yes	No	
Comm	ments:	NO FR	>	
4.	ACCURACY (Levels C, D, and E)	A		
-	samples analyzed?	()		N/A
Spike	recoveries acceptable?		No	N/A
Sike s	standards NIST traceable? (Levels D, E)	Yes	No	(N/A
Spike	standards expired? (Levels D, E)	Yes	No	(N/)
LCS/F	BSS samples analyzed?	(Ye)	No	N/A
LCS/E	BSS results acceptable?	Yes	No	N/A
Standa	lards traceable? (Levels D, E)	Yes	No	(N/A)
Stand	dards expired? (Levels D, E)	Yes	No	(N)A
Trans	scription/calculation errors? (Levels D, E)	Yes	No	NA
Perfor	rmance audit sample(s) analyzed?	Yes	No	N/A
Perfor	ormance audit sample results acceptable?	Yes	No	(N)
Comn	ments:			$\stackrel{\smile}{-}$
		ho Dts		<u></u>

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

5.	PRECISION (Levels C, D, and E)			
Dupli	cate RPD values acceptable?	(. Ye)	No	N/A
Dupli	cate results acceptable?		No	N/A
MS/N	ASD standards NIST traceable? (Levels D, E)	Yes	No	NIA
MS/N	ASD standards expired? (Levels D, E)	Yes	No	(N/A
Field	duplicate RPD values acceptable?	Yes	No	N/A
Field	split RPD values acceptable?	Yes	No(N/A
Trans	scription/calculation errors? (Levels D, E)	Yes	Not	ZN/A
	ments:			$\underline{}$
	· ·			
6.	HOLDING TIMES (all levels)			
Samp	oles properly preserved?		No	N/A
Samp	le holding times acceptable?	Yes	No	N/A
Comr	ments:	$\overline{}$		

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

7. RESULT QUANTITATION AND DETECTION LIMITS (all levels)	_		
Results reported for all requested analyses?	e }	No	N/A
Results supported in the raw data? (Levels D, E)	es]	No/	N/A
Samples properly prepared? (Levels D, E)	es]	No(Ñ/A
Detection limits meet RDL?	es (1	No)	N/A
Transcription/calculation errors? (Levels D, E)Y	es]	No 1	N7A
Comments:			
			

Additional Documentation Requested by Client

INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/18/05

CLIENT: TNUHANPORD RC-030 K0096

LVL LOT #: 0511L671

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTB	RESULT	UNITS	LINIT	FACTOR	
*****		医慢性性气性炎性炎性炎性炎性炎性炎性炎性炎		*****	*****	*******	
BLANK10	OSLHCO74-MB1	Petroleum Hydrocarbons	133 t	MG/KG	133	1.0	

INORGANICS ACCURACY REPORT 11/18/05

CLIENT: TNUHANFORD RC-030 K0096 WORK ORDER: 11343-606-001-9999-00 LVL LOT #: 0511L671

			BEIKED	INITIAL	SATKED		DILOTION
Sample	SITE ID	ANALYTE	SAMPLE	RESULT	AMOUNT	*RECOV	FACTOR (SPK)
****		医电流管管理管理管理管理管理管理	======	*=====	****		*****
-001	J10FJ2	Petroleum Hydrocarbons	726	132	607	97.8	1.0
BLANK10	OSLHCO74-NB1	Petroleum Hydrocarbons	628	133 u	560	112.1	1.0

INORGANICS PRECISION REPORT 11/18/05

CLIENT: TNUHANFORD RC-030 K0096

LVL LOT #: 0511L671

WORK ORDER: 11343-606-001-9999-00

			INITIAL			DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	REPLICATE	RPD	Pactor (Rep)
***		************	******	******		
-001REP	J10FJ2	Petroleum Hydrocarbons	144 u	145 u	NC	1.0